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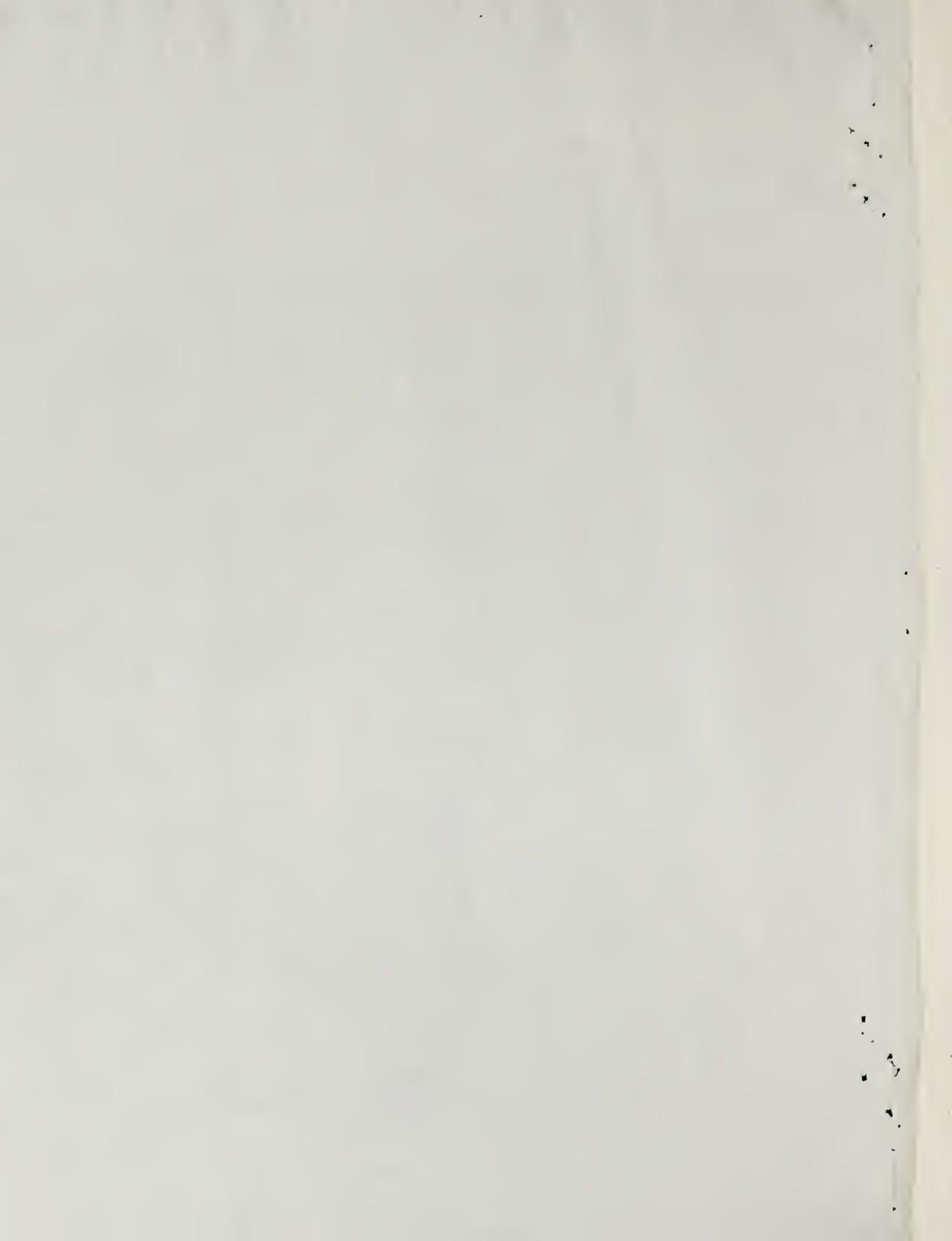
FINAL REPORT OF THE STUDY COMMISSION ON ENVIRONMENTAL HEALTH NEEDS

SUBMITTED TO THE COMMISSIONER OF PUBLIC HEALTH

Dr. David Ozonoff, Chairman
Steven Calichman, Vice-Chairman

Ruth Batson
Carole S. Greenleaf
Elizabeth G. Johnson
Ronald R. Jones
Judith Pickett, Esq.
Dr. James Robins
James K. Rogers
Dr. Robert W. Tuthill
The Rev. Bruce A. Young
Richard A. Youngstrom

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February 28, 1984

Bailus Walker, Jr., Ph.D.
Commissioner of Public Health
Commonwealth of Massachusetts
150 Tremont Street
Boston, Massachusetts 02111

Dear Dr. Walker:

It is my pleasure to transmit to you the Final Report of the Study Commission on Environmental Health Needs, which you established in September of 1983. The Commission members would like to extend our appreciation to you and your staff for your unfailing cooperation, assistance and support.

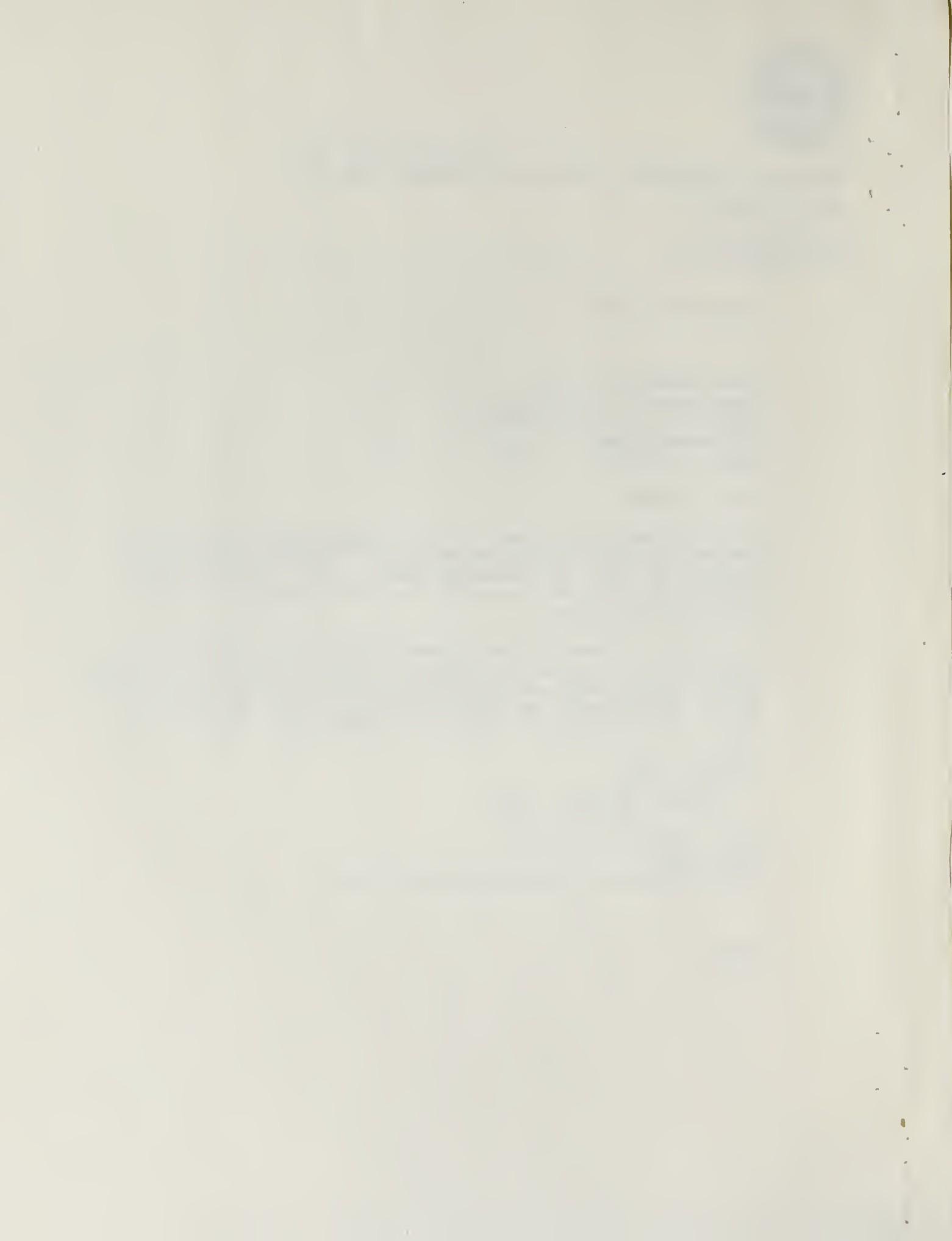
We offer the observations and recommendations of this report in the hope that it will assist the Department of Public Health in responding to the pressing environmental problems facing our communities. Speaking for all the members of the Study Commission, let me thank you for giving us the opportunity to serve the Commonwealth in this fashion.

Sincerely yours,

A handwritten signature in cursive ink that reads "David Ozonoff, M.D."

David Ozonoff, M.D., M.P.H.
Chairperson
Study Commission on Environmental Health Needs

DO/rm



ACKNOWLEDGEMENTS

The Study Commission thanks Public Health Commissioner Bailus Walker for his generous assistance and support, and for making the resources of his office available. The Commission is grateful to those individuals interviewed (see Appendix) for their time and guidance.

The Commission extends special thanks to Vivien Li, Commission Staff Director, and Leslie Curry, Commission Staff Assistant. Without their efforts during the past six months, the work of this Commission would not have been possible.

The Commission thanks Barbara Chase and Sandi Swible for their administrative assistance, and Pearl Russo for her editorial assistance. Finally, thanks go to Rhonda Hall, Lee Strunin and Chris Unger for typing this report.

EXECUTIVE SUMMARY

The Study Commission on Environmental Health Needs was created by Bailus Walker, Jr., Ph.D., Commissioner of Public Health, in September 1983 to examine the Department's approach to the environmental health issues of toxic and hazardous substances and ionizing and nonionizing radiation, to evaluate the Department's response to these issues, and to present such findings and recommendations as the Commission deemed appropriate.

Legal Framework

Unique to the Department of Public Health (DPH) is the far-reaching power given it to define and regulate public health concerns. The Department is empowered to define what diseases shall be deemed dangerous to the public health and to make rules and regulations for the control and prevention of such diseases.

The Department is given broad authority to create new divisions. This is in sharp contrast to other state agencies such as the Department of Environmental Quality Engineering (DEQE). For these other agencies, only the Legislature can add divisions.

In 1974, when the Legislature transferred some of the DPH duties to DEQE, it built in a statutory "checks and balances". The law provides for a DPH override on any DEQE regulations that could endanger the public health. This statute is limited in that it provides only for DPH "correction" of DEQE regulatory errors or omissions and does not allow DPH to review and override other agency regulations.

While the Department of Public Health has relatively unrestricted powers, without clearly defined statutory goals health officials run a risk of duplication and being diffuse in their regulatory roles. There are inherent management problems associated with broad regulatory authority. At the same time, there are no mandatory goals. Some environmental health activities have been delegated to other agencies; in other instances, authority between agencies is unclear. Consequently, the Department may often be in conflict with other

agencies. It is not surprising that duplication of effort, interagency conflict, and conspicuous gaps have occurred.

DPH Organization and Structure

Of the five bureaus within the Department, the Commission primarily focused its attention on the Bureau of Environmental Health Services. The five divisions within the Bureau conduct the following activities:

Environmental Health Assessment: Created in response to growing public concern over the health effects of environmental hazards, this division incorporates medical and technical expertise in the assessment of various environmental hazards and their impact on the public health. Working closely with the Department of Environmental Quality Engineering, the Division of Environmental Health Assessment is currently active in the areas of PCBs, contamination of town wells, industrial waste, and public information programs. There are nine staff members in the division.

Radiation Control: Through field surveys, this division protects the public from all sources of radiation, including both ionizing and non-ionizing radiation. Sources regulated include hospital equipment, doctors' offices and nuclear power reactors. The division has fifteen staff members.

Food and Drugs: The division is responsible for registration of pesticides, the licensing, monitoring, and inspections of food and drugs, and consumer products. It has 35 members.

Community Sanitation: The division monitors and enforces the State Sanitary Code and develops regulations and standards for prisons, camps, and other public facilities. It has five staff persons.

Childhood Lead Poisoning Prevention Program: The division's priorities include screening, laboratory analysis, lead paint inspection, code enforcement and support/technical assistance to local providers and boards of health. The division is responsible for provisions of the State Sanitary Code requiring deleading. It has 25 staff members.

DPH Mission in Environmental Health

The activities of the Department in the environmental health area can be grouped into four categories: preventive activities, service activities, planning and policy formulation, and regulatory activities. The Commission concentrated on the first three categories.

Current Problems with the Department

Problems identified within the Department include the following:

Trained managers: some senior managers in the Environmental Health Services Bureau demonstrate weak leadership and management skills. The staff are not as committed to overall environmental health goals as to putting out brush fires. Senior staff constantly appear to be in a reactive, rather than initiating, stage.

Clarity of mission: at present, the Department lacks a clarity of mission in environmental health issues. It needs well-defined goals and objectives.

Credibility with the public and community groups: some observers have noted that a clear notion of public service is lacking among some members of the Department, and that the central office in Boston is far removed from the real concerns of the communities. Commission members note that the problems of the Department with respect to communities can be characterized by three words: Attitude, Trust, and Resolve. Community groups in particular have been frustrated by what they regard as an apparent unwillingness on the part of the Department to listen to those closest to the problems. Members of the community see the Department as an obstacle and an adversary, not as an agency that is helpful and sensitive to their needs. The Commission noted that some of these problems were common in any bureaucratic structure.

Relationship with local boards and officials: although the Bureau's response to local officials and local problems is often good initially, a frequent complaint is the lack of follow-through and poor or no communication with local authorities. After requests by local authorities actions are often much delayed.

Relationships with professional groups: the Commonwealth is richly endowed with highly-trained persons working in the health field. Yet the Bureau rarely calls upon them to supplement in-house expertise. This contrasts markedly with DEQE, which takes advantage of outside groups to help shape departmental policy.

Findings and Recommendations

The Commission recommends the following:

- The Department needs to have well-defined goals and objectives in the environmental health area on which to base priorities. It needs to establish a centralized planning, policy, and evaluation unit for the Department and a similar mechanism within the Bureau of Environmental Health Services.
- Primary prevention of environmental health problems, especially in the lead poisoning prevention program, need to be emphasized in the Department's programs and budget allocations.
- The Commissioner should personally examine the capability and willingness of each manager within the Bureau of Environmental Health Services to address the concerns cited within the report.
- To restore public confidence, the Department should establish a community service group or bureau within the Commissioner's office to advocate legitimate concerns of the public.
- The Bureau of Environmental Health Services needs to inform local boards of health of the basis of decisions on the need for environmental health studies.
- The activities of the regional health officers need to be integrated into the Department's strategies for achieving environmental health goals and program objectives.
- The Department should establish a community board to: oversee requests for studies; ensure that the department's resources are not squandered in efforts of little value; and ensure that resources are used in rational ways.
- The Department should consider establishment of a broad-based advisory committee on environmental policy and planning to help set environmental health priorities for the Department and to make recommendations on environmental

health policy matters relating to responses to public inquiries.

---- Inservice training programs should be developed both for Department staff and for boards of health and their staffs.

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PREFACE

The Study Commission on Environmental Health Needs was created by Bailus Walker, Jr., Ph.D., Commissioner of Public Health, in September 1983 to examine the Department's approach to the environmental health issues of toxic and hazardous substances and ionizing and nonionizing radiation, to evaluate the Department's response to these issues, and to present such findings and recommendations as the Commission deemed appropriate.

The need for a study commission grew out of the recognition that too little emphasis in the past had been placed on preventive health strategies and that the limited existing environmental health programs were fragmented among several divisions within the Department of Public Health (DPH). Traditional environmental health issues, such as rodent control, waste disposal, and noise pollution, were not included in the mandate of the Commission. There remains a need to review carefully these areas of concern to ensure that the Department is addressing them appropriately. The twelve member Commission includes members of the business, labor, legislative, community, academic, and local health sectors. A list of Commission members is in Appendix I.

The Commission held its first meeting on September 16 and has held a total of eleven meetings, including four public meetings in Boston and in western Massachusetts. Comments received at the public meetings are summarized in the Appendix.

Much of the Commission's work was done in subcommittee. Three subcommittees were established to study specific areas. The Structure Subcommittee investigated the existing structure and organization of the Department. The Subcommittee also examined the process by which departmental programs became priorities and evaluated how well the personnel and other resources of the Department were used to address these priorities. The Relationships Subcommittee examined the relationship of DPH to other state agencies and to the public in addressing current environmental health issues.

Going beyond day-to-day activities of the Department, the Alternatives Subcommittee considered alternative organizational structures that could best address long range policy directives.

This report contains six sections. Section I discusses public health and the environment in Massachusetts. Section II highlights the legal framework for environmental health activities within the Department, while Section III discusses the existing organizational framework and resources of the Department. Section IV describes the mission of the Department in environmental health. Section V states the current problems in the Department. Section VI contains the findings and recommendations of the Commission.

A list of individuals interviewed by the Commission and its subcommittees appears in Appendix II.

I. PUBLIC HEALTH AND THE ENVIRONMENT IN MASSACHUSETTS

The condition of perfect public health requires such laws and regulations as will secure to man associated in society the same sanitary enjoyments that he would have as an isolated individual; and as will protect him from injury from any influences connected with his locality, his dwelling-house, his occupation, or those of his associates or neighbors, or from any other social causes. It is under the control of public authority, and public administration; and life and health may be saved or lost, and they are actually saved or lost, as this authority is wisely or unwisely exercised.

[Report of the Massachusetts Sanitary Commission, 1850]

When Lemuel Shattuck penned these words 134 years ago, he established for the Commonwealth and its yet to be founded State Board of Health a clear mission: to protect citizens from hazards associated with harmful elements in the general community, in the workplace, or from "any other social causes." The Report of the Massachusetts Sanitary Commission, which Shattuck chaired, became the blueprint for the nation's first State Board of Health in 1869.

Shortly after establishment of the Board, its first Chairman, Dr. Henry Bowditch, stated, "Authorities of a state are bound to take care of the public health, to investigate the causes of the epidemic and other diseases, in order that each citizen may not only have as long a life as nature would give him, but likewise as healthy a life as possible." By statute, the new body was required to make sanitary investigations and inquiries concerning sources of mortality in the state and the effects of localities, employments, conditions and circumstances on the public health; and further "to gather such information in respect to those matters as they may deem proper, for diffusion among people."

The tenure of the first State Board of Health was marked by significant reductions in mortality. Figure 1 shows the mortality experience in the country generally from major infectious diseases as well as the points where medical advances were first able to make effective contributions to cure or prevention.

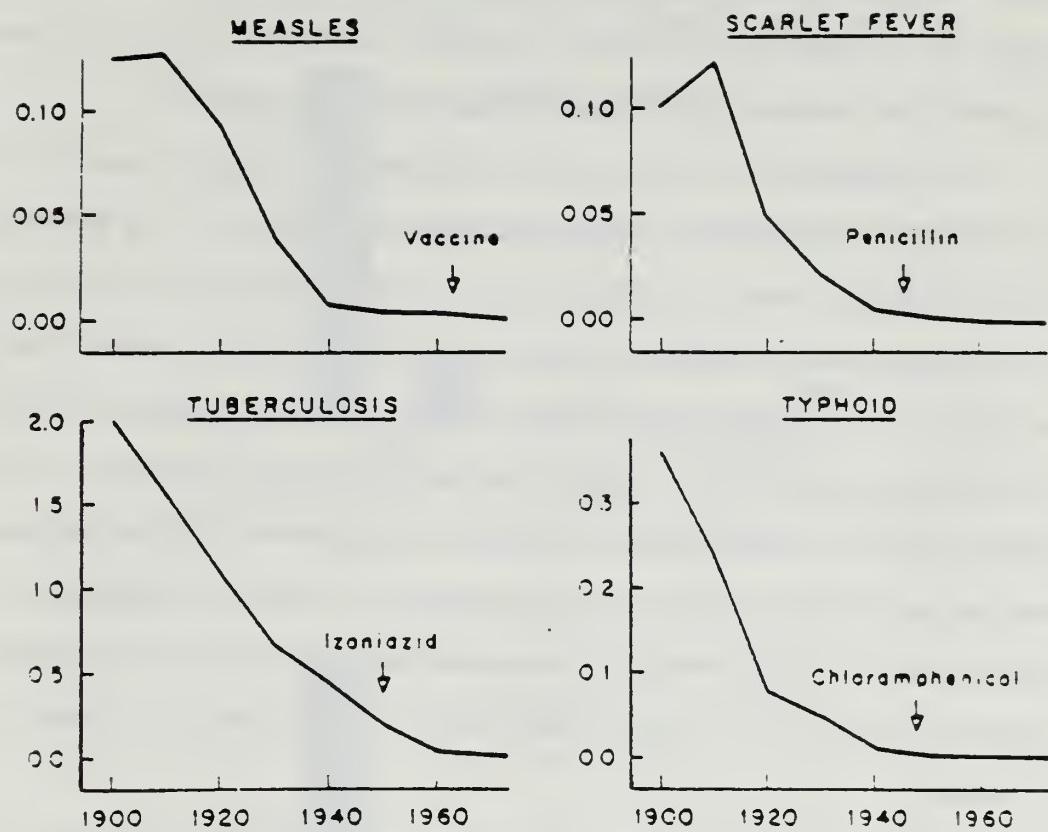


Figure 1: U.S. mortality experience in the 20th century for some major infectious diseases. (Source: McKinlay, J.B. and McKinley, S.M. "The Questionable Contribution of Medical Measures to the Decline of Mortality in the United States in the Twentieth Century," Millbank Memorial Fund Quarterly, 55:405-428, 1977.)

As can be seen, scientific accomplishments had little effect on the health status of the community as a whole. Rather, the decline in the death rate from these diseases resulted primarily from general improvements in the environment, including the provision of abundant and pure water, a wholesome food supply, and decent housing. An explicit lesson from what has been called the sanitary revolution is that the environment, broadly defined, is the single most important determinant of the health status of the community.

It is important to remember the secondary and tertiary benefits from environmental improvements. Figure 2 shows the effect of the purification of the municipal water supplies of Lowell and Lawrence in the 1890s on non water-borne disease mortality. Here and in similar other experiences, every death from a waterborne disease that was averted by cleaning a water supply also remitted two to three less deaths from non-waterborne diseases. Discrete changes that one might expect to affect only a portion of the environment had a substantial "ripple effect" on the community's mortality experience. The "environment" did not consist of separate compartments but was indeed an interdependent system in which improvements in one area had a beneficial effect in others.

Today we are in the midst of another public health revolution. The first sanitary revolution discovered that living agents in the environment ("germs") could cause disease. Today, however, we are discovering that chemical and physical agents in our environment can also cause harm to the population. Years of struggle under conditions of scientific uncertainty in the last century preceded implementation of effective measures to control infectious diseases. Today, the task is to implement equally effective measures to control the harmful consequences of chemical and physical contamination of our environment.

REDUCTION IN DEATH RATE
FROM
DISEASES OTHER THAN TYPHOID FEVER
FOLLOWING
WATER SUPPLY PURIFICATION

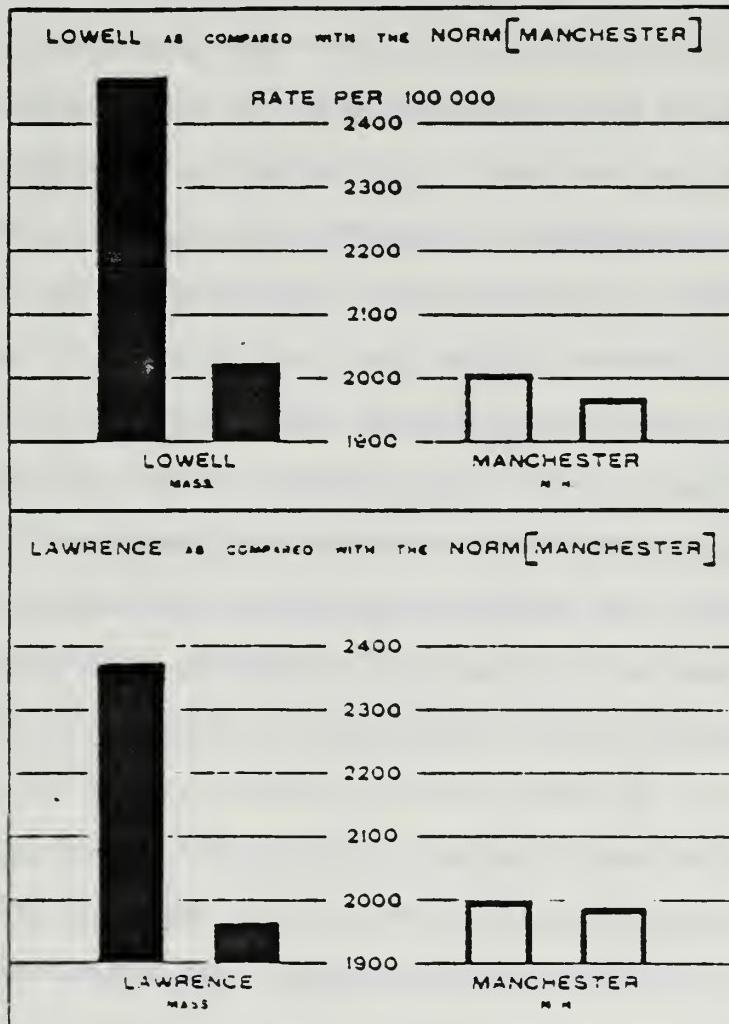


Figure 2: Lives saved from non-waterborne disease when a water supply is purified, the so-called Mills-Reincke phenomenon. (Source: Sedgwick, W.T. and MacNutt, J.S. "On the Mills-Reincke Phenomenon and Hazen's Theorem Concerning the Decrease in Mortality from Diseases Other Than Typhoid Fever Following the Purification of Water Supplies," Journal of Infectious Diseases, 7:667-704, 1910.)

The precise cost of this contamination is difficult to estimate. Although 80 to 90% of all cancers are said to be "environmental" in origin, many of them result from so-called voluntary behaviors such as cigarette smoking and choice of diet. On the other hand, the contribution to cancer mortality from involuntary exposures through the general environment is probably quite substantial. Estimates of the proportion of cancer deaths attributable to exposures to carcinogens in the workplace range from a low of 2% to a high of 38%. Even if we take the lowest of these figures, the number of cancer deaths in Massachusetts contracted in the workplace is on the order of one per day. If the 30 workers a month who die of occupational cancer were to be killed by a scaffold collapse or similar industrial accident, it would make national headlines. Yet its equivalent in terms of human life lost is tolerated month after month, year after year. Moreover, it is relatively certain that agents that cause cancer inside a workplace also cause it outside as well, since these agents inevitably "leak" into the general environment. This leakage occurs through improper disposal of toxic wastes or hazardous materials, from air emissions from smokestacks or "fugitive emissions" from open facilities, from unsafe consumer products, or from the workclothes of employees. Although the level of risk is less for these smaller exposures, the population exposed is significantly larger, so that even small levels of risk, e.g., one cancer per 100,000 people, can lead to large cancer burdens when millions are exposed.

Health effects other than cancer may also occur due to environmental contamination, but these have not been as well documented. It is estimated that approximately one reproductively active woman in five in Massachusetts has had or will have a miscarriage at some time, usually for unknown reasons. If even a small fraction is the result of environmental insult, the implications are substantial. Other high prevalence diseases such as cardiovascular disorders have also been suspected of having an "environmental component," but current knowledge is not sufficient to give an estimate of the possible burden to the

population.

In the case of one environmental poison, however, much is known. Chronic exposure to low levels of lead in the environment is strongly associated with irreversible impairment of mental and physical health. Data collected by DPH indicate that 9500 Massachusetts children, 2200 in Boston alone, are currently suffering from lead poisoning, with more being poisoned each year. In Boston many subsections of census tracts have been identified where 20% of the children have been, and can continue to be expected to be, lead poisoned with demonstrably high risk of permanent brain damage. In this instance, the Commission was quite specific in both its analysis of, and recommendations for, the existing program: The Commission believes that no discussion of toxics problems in Massachusetts can ignore this persistent and ravaging poison. The Commission recommends that lead be seen in the same light as other toxins, not segregated and isolated as a "special" problem. If this recommendation is followed, it should lead to a significant reassessment of how resources are allocated in the area of toxic substances. The Commission recommends that primary prevention be emphasized as in the control of other environmental hazards.

For urban community groups, issues such as community sanitation, noise pollution, and rodent control are of as much importance as toxic and hazardous pollutants. With the limited mandate given by the Public Health Commissioner, it was not within the purview of the Commission to examine these immediate concerns of urban neighborhoods. This is not to say that the Commission members endorse the activities of the Department in these areas. To the contrary, the Commission recommends that the Department re-evaluate its efforts in basic urban environmental services.

The Department of Public Health of 1984 is the direct descendant of Shattuck and the State Board of Health of the last century. But in the areas of environmental health, it is an agency now plagued with uncertainties regarding its role. In 1975, major environmental protection responsibilities were shifted

from the Department of Public Health to the Department of Environmental Quality Engineering (DEQE) as part of the consolidation of programs under the newly-created Environmental Affairs secretariat (EOEA). Among responsibilities that were shifted were enforcement and monitoring activities in such areas as air pollution, solid waste, and potable water supplies. DPH retained responsibility in some areas of human health protection, and has continued to work on studies examining the effects of toxic substances on human health. The result of the reorganization blurred lines of jurisdiction, leading to confusion and sometimes conflict between the two Departments. Moreover, within DPH, environmental health activities have become fragmented, the result, in part, of the lack of focus concerning its mission in this area.

II. LEGAL FRAMEWORK FOR ENVIRONMENTAL HEALTH ACTIVITIES WITHIN DPH

We believe that all citizens have an inherent right to the enjoyment of pure and uncontaminated air, and water, and soil; that this right should be regarded as belonging to the whole community; and that no one should be allowed to trespass upon it by his carelessness, or his avarice, or even by his ignorance. This right is in a great measure recognized by the state, as appears by the General Statutes.¹

Statutory authority for regulation of radiation and toxic substances is delegated among different secretariats, departments, commissions, and boards. Even as DPH moves to address this problem of diffused regulatory control of toxic substances, other agencies perpetuate this division.

The recent budget process highlights the fragmentation of responsibility between state agencies. According to the Senate Ways and Means budget summary of June 1983, Veterans Services requested and received \$350,000 to study the effects of Agent Orange. This represents an amount more than three times that proposed for the DPH Cancer Control Unit. The same budget summary showed a requested expansion by Department of Labor's Division of Occupational Hygiene for evaluation of asbestos in public schools and other buildings.

Organizationally, the Department of Public Health is included within the Executive Office of Human Services. Massachusetts General Laws Chapter 6A, Section 16, which lists the state agencies within Human Services, suggests that the Department shall include certain component parts:

the Department of Public Health and all agencies within said department, including the commission on hypertension, the drug addiction rehabilitation board, and the several advisory councils...

*

¹Circular letter, issued by State Board of Health in October 1869, and sent to the Mayor and Board of Health of every city, to the Selectmen of every town, to every member of the Legislature of 1869, and to every clergyman and physician in Massachusetts.

Further reference to other subdivisions is given in Mass. Gen. Laws ch. 17, s.4:

There shall be in the department a division of sanatoria, a division of communicable and venereal disease, a division of food and drugs, a division of alcoholism, a division of drug rehabilitation, and such other divisions as the commissioner, with the approval of the public health council, may from time to time determine. Each division shall be in the charge of a director. (emphasis supplied)

Other than a later paragraph mandating that the division of food and drugs contain a "furniture and bedding inspection section, a drugs control section, a poultry inspection section, a fish inspection section, and such other sections as the director, with the approval of the department, may from time to time determine", there are no further statutory directives to any divisions that potentially could be concerned with environmental health.²

This does not imply that DPH divisions are without statutory direction. The Division of Alcoholism, for example, has very specific duties listed in Mass. Gen. Laws ch. 111B. In addition, two recent environmental health programs have been added by the Legislature with specifically prescribed duties and regulatory functions: the lead poisoning prevention program, Mass. Gen. Laws ch. 111, ss. 190 et seq. and the radiation program, Mass. Gen. Laws ch. 111, s. 5B. Except for these two programs, no other programs in environmental health are statutorily defined or prescribed.

Unique to DPH is the far-reaching power given it to define and regulate public health concerns (Mass. Gen. Laws ch. 111, ss. 2 and 5). For example, section 5 empowers the Department to define what diseases shall be deemed dangerous to the public health and to make rules and regulations for the control and prevention of such diseases.³

² Mass. Gen. Laws at the end of C. 111, s. 2 does refer to a 1970 Attorney General's Opinion which states that the commissioner of DPH is "impliedly authorized under c.17, s. 2 and this section to reorganize the department to combine the division of food and drugs into the structure of the division of environmental health and appoint a divisional director to service under him and over the director of the division of food and drugs. . . ."

³ One legal definition of disease states that it is "a deviation from the healthy or normal condition of any of the functions or tissues of the body; an alteration in the state of the body or of some of its organs, interrupting or disturbing the performance of the vital functions" Black's Law Dictionary - a definition nicely encompassing some of the environmental health considerations.

More important, the Legislature established a three-tiered approach to the protection of public health, with strong authority given not only to the state commissioner but to regional and local health authorities.

Under statute, the DPH shall establish regional health districts each with a district health officer (DHO) who shall act as a representative of the commissioner. The DHO shall enforce health statutes and regulations (Mass. Gen. Laws ch. 17, s. 4.) and shall also gather information on diseases, deal with preventive aspects of such diseases, and, after consultation with the Department and local authorities, eradicate such diseases (Mass. Gen. Laws. ch. 111, s. 18.).

On the local level, the local board of health is vested with more regulatory authority than all the other municipal boards combined. Mass. Gen. Laws ch. 111, s. 31 is an unusually broad grant of authority that empowers local boards of health to adopt "reasonable health regulations." The power of the local board of health under section 31 is extensive. Enactment of section 31 "provided a comprehensive, separate, additional source of authority for health regulations" (Board of Health of Woburn v. Sousa, 338 Mass. 547, 550 (1959)).

Such authority gives the Department and local boards of health great discretion and flexibility in dealing with public health issues. Whether this discretion is purposeful or a matter of legislative oversight, it is in striking contrast to the other state regulatory agency that deals with environmental health issues, the Department of Environmental Quality Engineering. This difference is best illustrated by comparing the more detailed statutory overlay of DEQE to DPH and by examining some of the statutory inconsistencies that exist.

In 1974 many of the functions of DPH were transferred to the newly-created Executive Office of Environmental Affairs and placed under the control of the Department of Environmental Quality Engineering. To be consistent, Mass. Gen. Laws 6A, s. 16, which established the Executive Office of Human Services, was amended by the following clause added after the section on DPH:

but excluding such divisions and personnel which relate to the areas of environmental health, including air pollution control, noise regulation, community sanitation, water supply and water quality, noisome trades and sanitary landfills . . .

The transfer of responsibilities to DEQE is repeated in Mass. Gen. Laws ch. 21A, s. 8, which enumerates the specific duties of all agencies within the newly-created EOEA:

The department of environmental quality engineering shall include the bureau of environmental sanitation and all the powers and duties assigned to said bureau which relate to environmental health, air pollution control, noise regulation, community sanitation, water supply and water quality, noisome trades and sanitary landfill . . .

Section 8 not only details the statutory duties in Mass. Gen. Laws ch. 111 of DEQE but also lists a wide variety of divisions and boards now assigned to DEQE. Unlike the Commissioner of DPH, the DEQE Commissioner is not empowered to create other divisions.

Even the Secretary of EOEA cannot create new divisions (Mass. Gen. Laws ch. 21A, ss. 1-7). Apparently only the Legislature can add new divisions to the existing structure, as it did when it created the division of hazardous waste management, Mass. Gen. Laws ch. 21C. Nor is the DEQE Commissioner given blanket authority to define and regulate areas of interest. This structure is in sharp contrast to the power of the DPH Commissioner under Mass. Gen. Laws ch. 17, s.4, and ch. 111, ss. 2 and 5.

When the Legislature transferred some of the DPH duties to DEQE, it built in a statutory "checks and balances" under Mass. Gen. Laws. ch. 21A, s. 12. Section 12 provides for a DPH override on any DEQE regulations that could endanger the public health.⁴ This statute is limited in that it provides only for DPH "correction" of DEQE regulatory errors or omissions and does not allow DPH to review and override other agency regulations. The DPH/DEQE separation of

⁴This override was used in 1977 when DEQE was adopting regulations under the federal Safe Drinking Water Act and DEQE Commissioner David Standley refused to consider sodium as a drinking water contaminant. After being notified by two public interest organizations of DEQE's position and of the large number of sources with high sodium levels, DPH Commissioner Jonathan Fielding established a medical advisory committee, chaired by Dr. Morton Madoff, on this issue. The DPH report to DEQE recommended that public sources of drinking water be shut off when the source exceeded 20 parts per million (ppm) sodium. DEQE negotiated with DPH and adopted 20 ppm sodium as the level at which a notification to the users was required.

environmental responsibilities has prevented a single agency approach of aggressive action on environmental health concerns involving toxic substances. Much of the time involved in dealing with toxic issues revolves around determining which agency is responsible for what.

An example of this multi-agency approach and subsequent lack of planning or coordination can be seen in the area of pesticides. Three hundred and fifty thousand dollars was budgeted for Veterans Services to conduct an epidemiological study of Agent Orange, a herbicide used for vegetation control in Viet Nam, as well as along Massachusetts transmission right-of-way. Although veterans may be the appropriate focus of such a study, it is questionable whether Veterans Affairs should be conducting epidemiological studies on herbicides since the agency has neither the responsibility for the regulation of pesticides nor the expertise in conducting such studies.

In 1978, the Legislature repealed most of the existing pesticide statutes and adopted the Massachusetts Pesticide Control Act, Mass. Gen. Laws ch. 132B. This Act created a Pesticide Board within the Department of Food and Agriculture. The Board, chaired by the Commissioner of Food and Agriculture, consists of six state officials and seven gubernatorial appointees. Both DPH and Food and Drugs have a representative who serves as an ex-officio member of the Board (Mass. Gen. Laws ch. 132B, s. 3). Section 3A of this Act creates a pesticide board subcommittee which registers all pesticides. This committee consists of five people and includes the director of Food and Drugs, the Commissioners of Food and Agriculture, Department of Environmental Management, DPH, and a gubernatorial appointee who must be a commercial applicator.

Given the statutory composition of the Pesticide Board and its subcommittee, it is not clear which agency is directly responsible for pesticide issues concerning human health. The language of the Act raises the question of whether the interests of public health and those of the pesticide applicator and user are afforded equal protection under the Pesticide Control Act.

The confusion is further compounded by the 1981 amendments to the Food and Agriculture Department statutes that state that the "pesticide bureau" (sic) and "a division of plant pest control" are within the Department (Mass. Gen. Laws ch. 20, s. 6). At the same time, the Legislature left unchanged the placement of the Pesticide Board as an entity within the control of DEQE (Mass. Gen. Laws ch. 21A, s. 8).

In summary, the Massachusetts Department of Public Health and the local boards of health share similar attributes:

1. statutory authority to define public health goals and programs
2. regulatory authority to administer and enforce those goals and programs.

III. DPH ORGANIZATION AND STRUCTURE

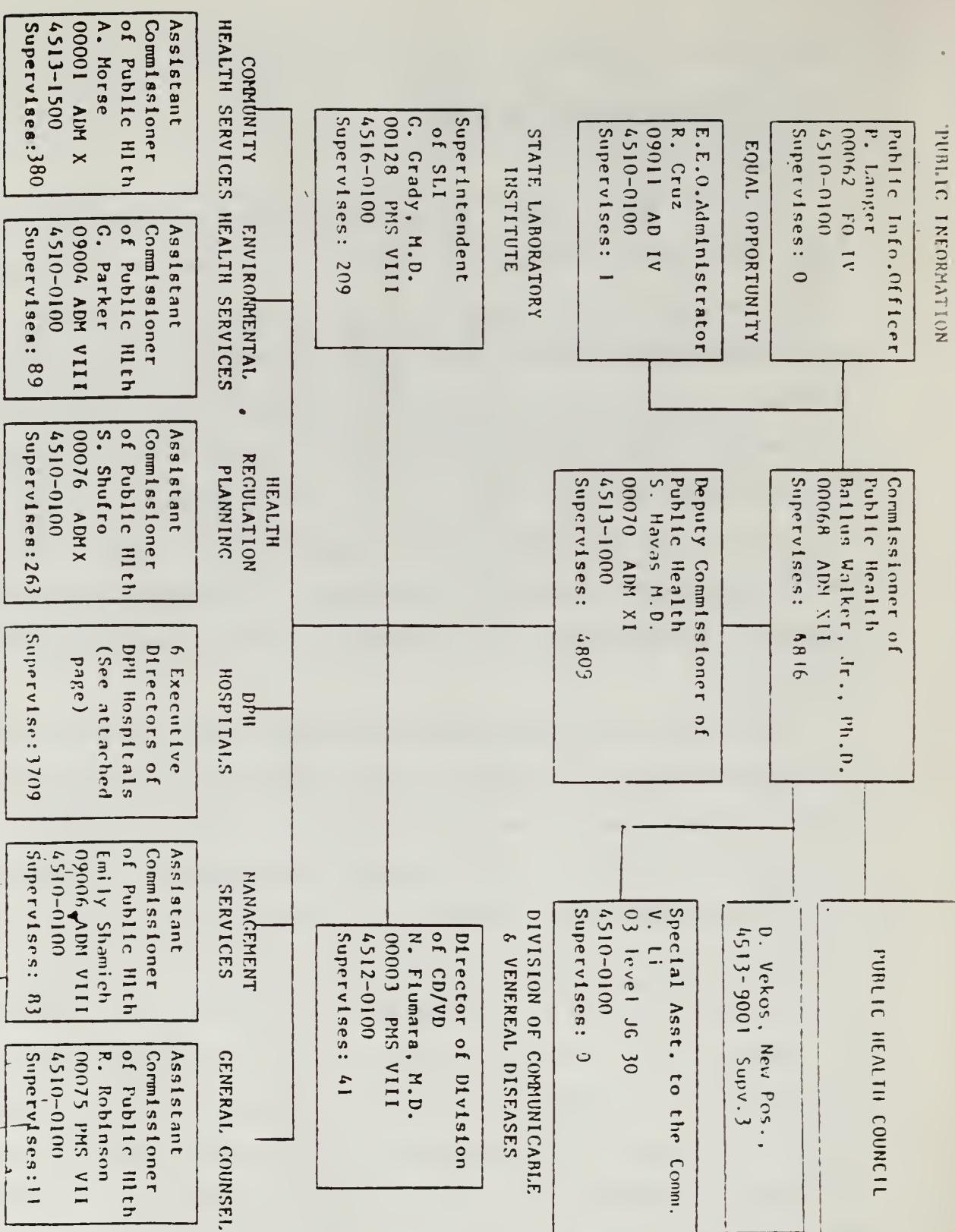
A. General Organization

The Public Health Council, with the Commissioner of Public Health as its chair, constitutes the Department of Public Health. The Public Health Council consists of eight members, appointed by the governor to six-year terms, and the Commissioner of Public Health whose term is coterminous with that of the Governor. Of the eight public members, three should be health providers and five should be non-providers "who are qualified to act in the broad public interest" (Mass. Gen. Laws chap. 17, s. 3). Where legislation or regulation specifies that the Department of Public Health has responsibility, the Public Health Council must take action. In instances where legislation or regulation states that the Commissioner has responsibility, s/he can act independently of the Council.

Supervisors of the Department's five bureaus, four regional health offices, six hospitals, and two independent divisions comprise the Commissioner's senior staff. Assistant Commissioners are responsible for the five bureaus: Community Health Services, Health Regulation and Planning, Legal and Legislative Affairs, Environmental Health Services, and Management Services. Divisions within each bureau are headed by Directors who report to the Assistant Commissioners. Figure 3 is the Department's organization chart. The two divisions that report directly to the Commissioner's office are the State Laboratory Institute and the Division of Communicable and Venereal Diseases. The State Laboratory handles the scientific research and surveillance activities required for the diagnosis and control of diseases caused by infectious, metabolic, and toxic agents. Four sections carry out specific types of investigations: Biological Laboratories (serums and vaccines), Diagnostic Laboratories (bacteriology, virology and serology), Newborn Screening (for hypothyroidism and metabolic

Figure 3:

MANAGEMENT OF PUBLIC HEALTH



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Commissioner

disorders) and Food and Drugs (surveillance, analyses). The Laboratory also does sampling and testing of environmental hazards. The Division of Communicable and Venereal Diseases is responsible for testing, vaccination, treatment, and analysis of disease trends.

B. Bureau of Environmental Health Services

There are five divisions within Environmental Health Services. They conduct the following activities:

Environmental Health Assessment: Created in response to growing public concern over the health effects of environmental hazards, this division incorporates medical and technical expertise in the assessment of various environmental hazards and their impact on the public health. Working closely with the Department of Environmental Quality Engineering, the Division of Environmental Health Assessment is currently active in the areas of PCBs, contamination of town wells, industrial waste, and public information programs. There are nine staff members in the division.

Radiation Control: Through field surveys, this division protects the public from all sources of radiation, including both ionizing and non-ionizing radiation. Sources regulated include hospital equipment, medical equipment in doctors' offices and nuclear power reactors. The division has fifteen staff members.

Food and Drugs: The division is responsible for registration of pesticides, the licensing, monitoring, and inspections of food and drugs, and consumer products. It has 35 staff members.

Community Sanitation: The division monitors and enforces the State Sanitary Code and develops regulations and standards for prisons, camps, and other public facilities. It has five staff persons.

Childhood Lead Poisoning Prevention Program: The division's priorities include screening, laboratory analysis, lead paint inspection, code enforcement,

and support/technical assistance to local providers and boards of health. The division is responsible for provisions of the State Sanitary Code requiring deleading. It has 25 staff members.

C. Radiation Control

The DPH has a well-defined statutory mandate with explicit goals and objectives to regulate ionizing and non-ionizing radiation. The statute states that the Department may require registration of sources of radiation and shall establish regulations to protect the general public from radiation hazards "associated with the use, transportation, storage, packaging, sale, distribution, production and disposal thereof" (Mass. Gen. Laws ch. 111 s. 5B). In addition, the Commissioner of Public Health is the administrator of the New England Compact on Radiological Health Protection and is responsible for developing a radiation incident plan (Mass. Gen. Laws ch. 111, App. ss. 1-1 to 1-4).

The Department's radiation control program has primarily focused on the inspection of medical and dental equipment and nuclear power plants and on the development of the incident response plan. In response to requests from local boards of health, the program has prepared reports on radiation problems associated with transmission lines, microwave transmitters, laser lights, sun tanning booths, and video display terminals.

Even with explicit and mandatory goals, the Department's radiation control program has been subjected to intense political and public scrutiny in the areas of radioactive waste regulation and on whether the Commonwealth should be a Nuclear Regulatory Commission "plan" state. The failure to systematically address these questions has resulted in the Executive Office of Environmental Affairs taking the lead in this area, including applying for and receiving grant money. While it is commendable that EOEA has aggressively pursued this issue, it lacks statutory authority to regulate in this area. Rather, DPH needs to carefully assess its responsibilities in radiation control.

Appendix IV discusses radiation control in greater detail.

D. Proposed Expansions

The DPH Commissioner has proposed the establishment of three additional units. A Center for Cancer Control/Environmental Epidemiology would research and implement health promotion/disease prevention programs. An Office of Local and Regional Health Services would work closely with local health agencies to keep them informed of Departmental policies and to provide prompt attention to local concerns. Through this office, the regional health officers would be involved more closely with the activities of the rest of the Department, and serve as the "eyes and ears" of the agency. An Office of Planning/Policy would be responsible for examining long-range policy goals for the Department.

E. Budget Process

The overall state budget process helps shape the Department of Public Health's annual budget. Each summer, the Department of Administration and Finance (A&F) determines revenue projections for the next fiscal year (July 1 - June 30) while constantly updating current revenue levels. On the basis of these projections, the agency secretariats are given "instructions" concerning the next year's budget.

Both a "base" budget and an "expansion" budget are developed. These two budgets tend to promote the assumption that departments (divisions) need at least what they had in the previous year. They also tend to limit departments to assess only resource shifts among divisions relative to expansion monies. Such a process is driven more by the objective of having a statewide "balanced budget" than by the goals and objectives of individual departments or divisions.

Agency budget directors present each department with guidelines to follow. For example, DPH was told to present a level-funded base budget in FY '84, and was allowed a 1% increase base budget for FY '85. Departments are then to present separately a prioritized list of expansion requests.

The department budget director, who in DPH has no assistant, gives a division a target figure for the next year's base budget. Each division has at least a staff person who is responsible for working with the budget director to develop the budget. Because the larger divisions have a larger and more specifically trained staff with budget expertise, this situation has the effect of keeping the big bigger.

As part of the statewide budget process, each division must complete forms on program objectives. These forms require each division to describe its program purpose, program objectives for the next fiscal year, measures to be used in evaluating the success in meeting the objectives, the goals attained in the past fiscal year, and those projected for the current and next fiscal years. These performance measures are quantitative, such as the number of epidemiological investigations or number of x-ray equipment inspections. Such a system has tended to direct DPH away from "real" evaluation.

Each division is also requested to present in narrative form its expansion requests, with a cost estimate. Whereas the base budgets are very much determined from the bottom up, the Department's senior managers make the decisions concerning which expansion items to include.

Chart I indicates the amount requested by the Bureau of Environmental Health Services for FY'82 through FY'84. These requests and appropriations do not include federal grants received by the Commonwealth under the Childhood Lead Paint Poisoning Prevention Program or similar grants. It should also be noted that close to half of the Department's budget is allocated to the six state hospitals.

The budget director and the assistant commissioner for management services are inclined to work directly with divisions, rather than through the assistant commissioners. There is, however, more direct interaction with the assistant

CHART I

BUDGET REQUESTS AND APPROPRIATIONS

	DPH	<u>ENVIRONMENTAL HEALTH SERVICES</u>
FY'82 REQUEST	\$123,165,840	\$2,413,222
FY'82 APPROP.	100,704,680	1,840,000
FY'83 REQUEST	\$102,635,351	\$1,649,424
FY'83 APPROP.	117,247,675	1,619,464
FY'84 REQUEST	\$130,770,513	\$2,317,057
FY'84 APPROP.	124,885,528	1,642,022

commissioner for environmental health services because of the consolidation of divisional budget accounts which are under him.

As indicated, the management staff of the divisions are the "staff" for the assistant commissioner of management services. As DPH grew and assumed new programs, such as expansion of environmental services, the same fixed number of managers in the management division has been spread thinner and thinner. To mitigate this, it has been suggested that the divisions' budget staffs become one DPH budget bureau. Similarly, personnel management is decentralized at present. Training includes only what an individual division can muster within itself. Resources are not pooled, and therefore often do not reflect need.

In the FY'84 budget request, the Department requested an additional manager to develop a program budget and a three-year financial plan for the Department. This request was not funded. As a result, staff of the bureau of management services has not had the time to step back and develop a process for longer term planning.

In reviewing the budget process, the Commission noted the following: lack of public input into the budget process, decentralized budget process, and lack of priorities reflected in budget.

In years past, the Bureau of Environmental Health Services never solicited citizen comment in development of the budget. After preparation of the budget, moreover, no briefings were held on the proposed budget. This approach is in marked contrast to that of other agencies, such as DEQE, which routinely inform citizens of their proposed budget in an effort to get advocates for their programs.

Until the last few months, the EOHS Secretariat never made the attempt to get meaningful public input on the budget. Public hearings in the past were held in Worcester and, as a result, few citizens participated.

Secondly, the decision-making process on the budget often happens at the Assistant Commissioner level. As a result of this decentralized process, the Commissioner may or may not see certain requests for budget expansion, as in the

case of the Lead Poisoning Prevention Program. This vital program has not been included in expansion requests of either the Bureau or Department, even though lead paint poisoning is one of the most serious environmental hazards for children.

Finally, because of the decentralized budgeting process, the Department's budget often does not reflect the true priorities of the agency. Because the budgeting process tends to perpetuate past spending levels, small divisions tend to remain small, while larger agencies tend to remain large. These factors serve to skew spending levels away from programmatic priorities.

IV. DPH's MISSION ON ENVIRONMENTAL HEALTH: PREVENTION, SERVICE, AND PLANNING

The activities of the Department of Public Health in the environmental health area can be grouped into four categories: preventive activities, service activities, planning and policy formulation, and regulatory activities. This Commission concentrated on the first three categories.

1. Prevention Activities: It is customary to distinguish such activities as being either primary or secondary prevention. Primary prevention in environmental health involves the prevention of exposure to environmental health hazards so that environmental disease does not occur. Secondary prevention refers to the early detection or early warning of environmental hazard or disease, with the aim of improving the prognosis or lessening the severity of the damage.

Most primary prevention activities in environmental health were transferred to the newly-formed Department of Environmental Quality Engineering in 1975. These included air and water pollution control activities and hazardous waste management. Primary prevention of workplace hazards continues to be the responsibility of the Division of Occupational Hygiene in the Department of Labor and Industry.

Certain primary prevention activities in environmental health were explicitly left with the Department of Public Health, such as radiation control and lead paint poisoning prevention, which are in the Department's Bureau of Environmental Health Services. Among primary prevention activities not required by law are certain areas that do not fit comfortably in other agencies, such as control over pesticides, asbestos, and indoor air pollution. In each of these cases, there is room for primary prevention activities by the Department of Public Health, either because no other agency is currently regulating or overseeing these areas, or because there are significant gaps in the coverage by other agencies, e.g., in indoor air pollution or asbestos problems.

It does not appear that a systematic survey of the broad range of environmental health prevention activities has been done within state government to evaluate where duplications and gaps occur.

In the realm of secondary prevention, screening and treatment services for children in the lead paint poisoning prevention program are one example. Indeed, secondary prevention is the only active portion of the lead paint poisoning program since its prevention aspects essentially have never been functional due to a lack of funding and staffing. Currently, secondary prevention activities are available only for the most severe cases of lead poisoning. This program is one of the most dramatic examples of a toxic substance doing great damage in our communities but where adequate response by public agencies is not forthcoming despite detailed knowledge.

The Department conducts surveillance for early detection of environmental hazards, usually through monitoring of existing data bases. The use of vital events such as mortality and birth records to detect unusual occurrences is established and valuable. The state Cancer Registry, now in its second year of operation, can and will be used for the same purposes. Instances where unusual rates of birth defects, cancer, or mortality from a particular cause are evident, may serve as an early sign that an environmental hazard is present or has been present in the community.

A currently underused resource in secondary prevention is the Department's State Laboratory Institute in Jamaica Plain. This facility is capable of performing routine biological monitoring or surveillance of blood, urine, and other biological specimens. The facility could be used to analyze samples to monitor pollutant burdens in residents of the state, e.g., in blood sera submitted for routine premarital blood tests. Finally, a number of ad hoc studies can be performed, such as looking at vital events in communities with hazardous waste problems, which might shed light on the community's environmental health problems. This kind of routine and non-routine surveillance of existing data bases is an important function in secondary prevention and needs to be encouraged.

2. Services: In addition to preventive activities, the Department also provides services. "Outbreak investigations" of suspected chemical contamination in communities have received a good deal of staff attention. These investigations are of two kinds: One type attempts to evaluate the health consequences of known or suspected exposures to toxic agents in the environment. Thus, if it is known that a chemical has contaminated a water supply, an investigation may be mounted to see if the contamination has had an effect on the health of the population, such as an increase in the cancer rate. The second type of investigation begins with the recognition of an unusual incidence of a disease or health condition such as cancer or birth defects, sometimes called a "cluster outbreak," and attempts to work backward to see if an environmental cause can be determined. Both types of investigations are carried out primarily by the Division of Environmental Health Assessment often in conjunction with the Department's Division of Health Statistics and Research. The completed research reports are frequently the focus of citizen dissatisfaction and complaint and will be considered later in this report.

A second service provided by the Department in the area of environmental health can be loosely described as educational. The Department provides information to professional groups, local boards of health, the public, and other agencies. This may be in the form of didactic or teaching materials, or advice and consultation.

3. Planning and Policy Formulation: The Department should provide advice and consultation on the nature and extent of environmental health needs within the state. A unit also needs to plan and set priorities for the Department itself. No such unit currently exists. A planning unit would clarify the most important unmet environmental health needs, determine where and how DPH can be most effective, and ensure that such decisions are effectively addressed and reflected in the organizational structure, departmental budget, and program policies and activities.

Policy formulation within the Department needs to be carried out. For example, it is necessary to consider the criteria to be used before an investigation proceeds, the principles upon which scientific information will be evaluated, and a variety of similar considerations. Policy formulation differs from long-range planning in that it attempts to step back from the day-to-day activities of the Department and considers what should be the principles upon which those activities are based. Both planning and policy formulation are one level removed from the day-to-day implementation of programs. It is also necessary for the staff of the Department to survey the needs of the Commonwealth in the environmental area, and consult with other agencies engaged in environmental protection so as to advocate and present the public health point of view. Thus, planning and policy formulation in environmental health often transcend the boundaries of the Department of Public Health and extend to other agencies and levels of government.

V. CURRENT PROBLEMS WITHIN DPH

The Department lacks several key elements: sufficient competent, professional managers; a planning process; clarity of mission; credibility with the public and community groups; rapport with local boards and officials; and input from professional groups. These problems are discussed in greater detail below.

Trained Managers: Some senior managers in the Environmental Health Services Bureau demonstrate weak leadership and management skills.

The staff are not as committed to overall environmental health goals as to putting out brush fires. Senior staff constantly appear to be in a reactive, rather than initiating, stage. As a result, there is a lack of commitment to ongoing planning, program development, and evaluation in such areas as lead paint poisoning prevention, environmental assessments, asbestos, and radiation control.

The staff do not use management techniques as part of the planning process or for critical review of requests for environmental health assessments. As a result, the Bureau's limited resources are allocated on a first-come, first-served basis or on a political basis. Allocation of resources is not decided on merit per se. Furthermore, the lack of appropriate management tools makes it unclear how much more resources are needed, and exactly for what.

The senior staff's relationship with the general public, local boards of health, and outside professional organizations is discussed in greater detail below.

Given the detailed studies in epidemiology and toxicology and the need to make sound judgments regarding potential health hazards, senior managers must have solid training and experience in these areas. Managers are less well-equipped to make appropriate decisions with only on-the-job training.

Clarity of Mission: At present, the Department lacks a clarity of mission in environmental health issues. The need for well-defined goals and objectives

is clear:

1. The legal mandate of the Department is very broad, allows new divisions to be formed at the discretion of the Commissioner and, as a result, does not dictate a department structure.

2. As indicated earlier, the statewide budget process actually misdirects the Department away from its own goals towards the statewide objective of a balanced budget.

3. Unless there are specific goals and objectives, politics and personalities interfere with, or can be blamed for interference in, the scientific policymaking and decision-making process. Goals and objectives, to be effective, must be translated into policy papers, risk assessment policy criteria, and study criteria.

4. The responsibilities of DPH require the Department to interact constantly with other state and federal agencies, and with local health authorities, in order to service and protect the public. DPH has an oversight responsibility over all state regulations to ensure that public health is adequately protected. This overall charge is especially true when the delineation of responsibilities among agencies is not clear from the start.

5. A clear mission breeds consistency, both internal and external. Internally, it is reflected in a consistent system of personnel evaluation. Externally, it more clearly indicates what the Department can and cannot do with the resources allocated to it. Programs come from a plan rather than being reactions to "brush fires."

Credibility with the public and community groups: The "public" in the Department of Public Health is not only a reference to public health but a recognition of the fact that this Department is a public agency, and its employees are public servants. Some observers believe that the notion of public service is lacking among some members of the Department, and that the central office in Boston is far removed from the real concerns of the communities.

There is, of course, not one public, but many publics, each with its own concerns. Some of these publics believe they are poorly served by the Department. There are persons, for example, who believe that the Department is more willing to invest resources in middle-class concerns than in those of the inner city, as evidenced by the peripheral support given to the lead paint poisoning program. Yet, ironically the middle-class public also feels itself ignored and untended. Given the importance to the Department of public support, this lack of confidence is one of the most serious problems facing it today. Commission members note that the problems of the Department with respect to communities can be characterized by three words: Attitude, Trust, and Resolve. Community groups in particular have been frustrated by what they regard as an apparent unwillingness on the part of the Department to listen to those closest to the problems. Despite its public mandate, DPH is seen by such members of the community as an obstacle and an adversary, not as an agency that is helpful and sensitive to their needs. The Environmental Health Services Bureau routinely responds to a citizen concerned with local chemical contamination by minimizing the problems, stating, in effect, "We can't bother to investigate every unsubstantiated claim or concern," or, "When you can provide some hard scientific or statistical evidence, please call us again." A perception persists that the Bureau feels local concerns are "unnecessary, annoying, troublesome, and to be avoided." Often community residents are told, on the basis of a check of mortality records or data in the Cancer Registry that "no problem exists," even though such sources may not be pertinent to their problem since they deal with past occurrences rather than current ones. Although not epidemiologists, community residents are perceptive enough to see that they are being put off.

For citizens finally given promises of help, the Bureau often does not follow through. Sometimes this takes the form of a response, "We'll get right back to you" or a pledge that "we'll send you that information today." When no return calls are made and no information forthcoming, the delays are then

explained by lack of personnel, money, or because the request falls under the responsibility of other departments or agencies, most often DEQE. Many citizens' groups, however, note a historic lack of interest by the Bureau in having members of the public help push the Legislature for more resources. Moreover, the Department gave little attention to environmental health issues in recent years. Such an attitude has not only damaged the effectiveness and morale of the environmental health division, but made the community unsympathetic to, and cynical about, any real limitations of resources that may exist.

The perceived attitude that citizen complaints are an unwelcome burden, together with the broken promises and lack of follow-through, have conveyed the impression that the agency lacks resolve. The impression is widespread that the Bureau does not really want to investigate problems of toxic contaminations and does not want to be bothered by community groups and their concerns. Frustrated citizens often blame this lack of will upon particular personnel within the Environmental Health Assessment Division or, in a more sophisticated version, ascribe it to poor management. The Commission has made two observations: 1) There have been problems with the attitudes of particular staff members in relating to community groups; 2) There are very real management problems, as evidenced by the lack of record-keeping with respect to community contacts, the absence of evaluation of the dispositions of the many requests and inquiries, and the failure to plan accordingly in allocation of resources. Nevertheless, there appears to be even deeper problems that will require structural solutions.

The lack of commitment to important toxics problems such as lead poisoning, we believe, is a reflection of a persistent blind spot with respect to the environmental problems of the inner city as compared to middle-class communities. This attitude is not peculiar to the Division of Environmental Health Assessment, nor even to the Department of Public Health. It is a problem that needs to be stated forthrightly and explicitly. Were the problems with toxic substances in the environment assessed rationally according to the seriousness of the effects and the magnitude of the problem, there would be no question that

the small or nonexistent place given to the prevention of lead poisoning in toxics programs would be seen as a serious distortion. This problem can be solved by integrating the problem of lead in the environment into the general scheme of existing and planned hazardous waste and other toxics programs, e.g., the Superfund program.

The structural problems related to investigations of outbreaks are more complex and difficult to deal with. These kinds of investigations are considerably different in technique than the ones that have been traditionally practiced by health departments in the area of infectious diseases. The environmental investigations required are costly, time-consuming, and complex, and almost always yield, even after much effort, highly ambiguous results. The tools that are available to the investigator, usually involving epidemiological techniques, turn out to be relatively insensitive to determining the origin of even major health effects in a community. Unlike a laboratory experiment where the major factors that might obscure or disturb an effect are strictly controlled, epidemiological investigations are observations of "natural experiments." Since the real world cannot be controlled by the investigator in the same way as in the laboratory, the results of these "experiments" rarely yield the type of clear-cut answer one would wish. The ambiguous result, coming after much effort, is ungratifying to communities and investigators alike. These types of investigations, even when well planned and carefully done, are inherently frustrating.

As a result, the investigators become cynical, believing that their efforts will inevitably be of little value and certainly will be unappreciated, no matter how hard they try. It is easy to understand how this can lead to a failure of will, since the only promise most prospective investigations seem to hold is for more work, potential trouble with local officials and community activists, and criticism from all parties involved. This outcome, in turn, produces an intransigent bureaucratic, defensive posture, whose main characteristic no matter how well disguised is a variation of "passive-aggressive" behavior, which merely

exacerbates frustrations and antagonisms of the community.

The problem becomes compounded when interpretations of ambiguous data must be made. These judgments must always be made under conditions of scientific uncertainty. It is always hoped that they will be the best judgments for protecting the public's health and welfare, but usually neither the agency nor the community knows if they are correct. The agency may indeed have erred by being too conservative (that is, took more vigorous or restrictive actions than necessary) or too lax (that is, was not vigorous enough).

If anything, the Department of Public Health is mandated to err on the side of conservatism, that is, on the side of health protection. Nevertheless, there is an unmistakable tendency to make the opposite kind of error. This results because the staff, at all levels, imagine the consequences of each kind of error and assume that the political risks (to the Department and to themselves) of being too conservative are more serious than the risks of being too lax.

The reasons for this judgment are quite clear, and from the bureaucratic standpoint, quite rational. Too vigorous actions result in visible restrictions on some usually well-organized interest groups, often in the private commercial sector. These negative effects can be seen and felt, unlike the positive effects. Indeed, even if the actions are appropriate, the Department rarely can point to visible results to demonstrate this. On the other hand, if actions are too lax, the negative effects are not usually seen, since they may be below the level of detection by epidemiological methods or may involve events that will happen decades later. In these circumstances, it is always plausible and defensible for a scientist to say that "data were not sufficient" to take any action. Local community groups are usually not able to document the reason for their concern and, moreover, are politically powerless. Even if they can bring some pressure to bear, the Department knows that it will "blow over" with time. Taken together, these factors create an understandable tendency to minimize any findings in an investigation that would lead to more vigorous action and hence problems for the Department.

It is also true that the Department is overloaded with work and short on staff and other resources. Therefore, the difficulty experienced by a citizen in working through the system may be a type of bureaucratic mechanism to screen or filter the requests, leaving only those politically connected or the most persistent. This may be an effective mechanism in some cases, but clearly not in others. The current investigation in Peabody was broached some time ago, but "died for a year" before being taken up again. Moreover, personnel who decide on what should be done are also the ones who must do the work, a situation resulting in a built-in conflict. There is a natural reluctance to take on more work in the face of limited staff and budget, political pressures that distort priorities, and in the continual acquisition of new responsibilities from loose ends not covered elsewhere.

A final problem is the use of the epidemiological tool itself. Epidemiology focuses on groups, not on individuals, and makes statements only about those groups. On the other hand, the concerns of communities are pre-occupied with those of individuals, such as grief for lost loved ones, or concern about children and other family members. As a result, there is a built-in basis for confusion and lack of understanding. Although this problem may be difficult to solve when understood, it becomes much worse when there is confusion on the part of both parties involved: The Department considers the community to be ignorant, while the community considers the Department to be insensitive and hard-hearted.

Of the three problems of attitude, resolve, and trust, the most serious is the problem of trust. Renewed resolve and improved attitude will be for naught if the essential element of trust between the Department and the community cannot be restored. On the other hand, with the restoration of trust, improvements in attitude and a renewed resolve are inevitable. This report will make some suggestions on how to improve trust.

Relations with local boards and officials: Although the Bureau's response to local officials and local problems is often good initially, a frequent complaint is the lack of follow-through and poor or no communication with local authorities. After requests by local authorities actions are often much delayed. In Bedford, for example, where an initial request for assistance was made in December 1980, no study to date has been completed. In Leominster, initial response was judged good by local officials, but data collection and follow-up for a case control study took more than a year. Moreover, interviews with the control population were initiated months after the initial collection of data, a possible flaw. An environmental health assessment study done in Peabody for a local citizens group was never coordinated with the town. As a result, the town was never informed of the study until after it had been in progress for months.

Local officials have indicated a need to know what factors serve as a basis for decisions about whether an environmental health study is conducted. No explicit policy seems to exist, and definitely no written policy or evaluation criteria. When further study is warranted, local officials believe it should proceed in a deliberate and timely fashion, with local authorities fully informed of plans and afforded the opportunity to have input or comment. When a decision is made not to proceed with further study, local officials should be duly informed of the findings and the reasons why a study will not be done.

The communications problem could be helped by better use of existing resources. The Environmental Health Services Bureau has not used the regional health officers of the Department in helping to communicate information to local boards of health. These regional health officers are underutilized by the Department, and could help bridge the communications gap between the Bureau and local officials.

It is important to note that despite their concerns and frustrations with the Department, local officials are usually grateful for the Department's assistance, since they feel understaffed and ill-equipped to deal with the

modern problems of toxic contaminations in the environment. Local officials must often rely upon the Department and its expertise to help them address local health issues.

Relationships with professional groups: The Commonwealth is richly endowed with highly-trained persons working in the health field. Yet the Bureau rarely calls upon them to supplement inhouse expertise. These health professionals are the "eyes and ears" of the health care system in the community, and can serve as a conduit for information. They are often the first to detect, or be told about, environmental hazards; they also have a unique opportunity to pass on to their patients and clients important environmental health information.

The experience in DPH contrasts markedly with that of DEQE. Staff at DEQE take advantage of outside groups, often using them to provide technical assistance and to help shape departmental policy. Such cooperation is important for several reasons. First, by using outside groups, the state can take advantage of "free expertise," supplementing its own staff at no cost. Second, it helps to build consensus. By getting together experts on all sides, one can hammer out disagreements in advance and reach some type of compromise. By this means, it is not unusual for all sides to be in support of a proposal by the time it reaches the DEQE Commissioner.

VI. FINDINGS AND RECOMMENDATIONS

The Commission recommends that immediate action be taken in the following areas: clarity of mission and management; restoration of public trust; maximum utilization of resources; and improved education. Of these, clarity of mission and management and the restoration of public trust are paramount.

A. Clarity of Mission and Management

1. Finding: The Department of Public Health suffers from a lack of clarity in its mission for environmental health services. The Department lacks clearly defined goals and objectives in the environmental area, the result, in part, of broadly-defined statutory authority and, in part, of a lack of planning.

The Commission finds the absence of a planning and program evaluation office within DPH to be one of the most obvious structural problems. The Department does not have a centralized planning office. Within the Environmental Health Services Bureau, there does not appear to be a planning mechanism to determine priorities and allocation of resources and staff. It is difficult to imagine how an agency with such complex and statutorily unstructured responsibilities, and which lacks a coordinated planning effort, can effectively determine the following: priorities and policies; how these priorities are affected by the cascade of new public health information; and how they can most effectively be implemented.

Recommendations

--- The Department needs well-defined goals and objectives in the environmental health area on which to base priorities. Such goals and objectives will indicate what the Department should and should not do with resources allocated to it.

--- The Commission believes that a need exists for a centralized planning, policy, and evaluation unit for the Department and for a similar mechanism within the Bureau of Environmental Health Services. Such a unit should not have responsibilities for direct program implementation.

2. Finding: The budget process is not used to its fullest potential. It does not reflect an appropriate picture of the Department's program priorities nor is it used to monitor performance. The budget currently does not promote the most efficient usage of resources at either the Department or Division level.

The current budget process tends to perpetuate the funding allocation for each division on an on-going basis, without regard to priorities. As a result, divisions that are small tend to remain small, while those that are larger remain large, regardless of what the Department's priorities may be.

Recommendations

--- It is imperative for the Department to have a budget-planning process that reflects and supports the priorities of the agency.

--- Outside constituency input should be solicited during the planning and budget advocacy processes.

--- The Bureau of Management Services needs to take a more direct role in having the budget linked to other management functions, such as management of performance and personnel training. The Bureau should have the resources to coordinate inter-divisional activities in policy implementation, planning, training, and legislative advocacy.

3. Finding: The unclear separation of authority in environmental health among DPH, DEQE, and other agencies has precluded a focused, aggressive approach to prevention of environmental health problems involving toxic substances. The result has been, on the one hand, turf battles on toxic issues, and, on the other hand, unaddressed issues in certain environmental health areas.

Recommendations

--- The Department should take a leadership role in addressing the health issues of environmental problems in coordinated activities with the Department of Environmental Quality Engineering, the Department of Environmental Management, the Department of Labor and Industry, the Pesticide Board of the Department of

Agriculture, and other relevant federal, state, and local agencies.

--- An interagency liaison group should be established to meet regularly to discuss problems of mutual interest and develop coordinated responses to environmental health problems.

4. Finding: The Department's primary prevention activities and responses in instances where a great deal is known concerning health effects of toxic materials have been limited, not aggressive, and sometimes ineffective. An example is in lead poisoning, one of the state's most persistent and ravaging toxic poisoning problems.

Recommendations

--- The Department should focus its attention, whenever possible, on primary prevention of environmental health problems. The following areas need attention in the immediate future.

--- Lead poisoning should be seen in the same light as other toxics and not segregated or isolated as a "special" problem. There should be an immediate assessment of how resources are allocated in toxics programs, as well as of the expansion or redirection of these resources to include the establishment of an aggressive program to prevent lead poisoning by removing the sources of the poisoning from the environment, especially of at-risk children.

--- The Department should adopt more detailed regulations for the safe removal, enclosure, and repair of asbestos as part of the implementation of the State Sanitary Code. The Department should assist local boards of health in understanding and applying the Code.

--- The Department should regard pesticide regulation as a public health matter and seek legislative changes to have responsibility shifted from the Department of Agriculture to DPH. The Agriculture Department often has a conflict of interest in the regulation of pesticides, because its mandate includes the promotion of the economic health of agriculture in the state, which may be at odds with public health concerns. The Department should be involved in the development of data on pesticides, registration of pesticides, the phase-out of

the more toxic ones and monitoring of human exposure.

--- The Department should recognize the workplace as the source of many environmental pollutants and hazardous wastes. It should encourage prevention of environmentally-induced disease by advocating changes in the workplace that reduce hazardous materials, such as source reduction.

As other concerns are identified, the Department should focus its efforts towards primary prevention of major environmental health hazards.

5. Finding: There needs to be improvements in the training of some personnel and support staff, and in the leadership and management skills of the staff in dealing with the many complex projects undertaken by the Bureau of Environmental Health Services. Some senior managers of the Bureau suffer from a lack of credibility with the general public, local boards of health, academia, industry, and other officials.

Recommendation

--- It is recommended that the Commissioner personally examine the capability and willingness of each manager within the Bureau of Environmental Health Services to address the concerns cited within this report. If necessary, the Commissioner should recruit new managers who are knowledgeable and technically trained, and who are committed to environmental health.

B. Public Confidence

1. Finding: Community groups express a sense of distrust of and/or lack of confidence in the Department's Bureau of Environmental Health Services. The public perception is that the Bureau considers citizens' input and participation unnecessary, annoying, troublesome, and to be avoided. This attitude results, in part, from the inadequate handling of communications and interaction with citizen and community groups and, in part, may reflect the attitudes of "bureaucratized" managers.

Moreover, insufficient records are kept of requests for assistance. There does not appear to be an appropriate tracking system to determine eventual

disposition of matters brought to the Bureau's attention.

Recommendations

--- As a start, Department personnel need to deal with the public in a courteous, helpful manner. They need to convey the sense that they are public servants willing to help the public, rather than bureaucrats who are inconvenienced by the public.

--- The Commission recommends that a community service group or bureau be formed to operate out of the Commissioner's Office. This office would advocate legitimate concerns of the public. It would also help to coordinate the activities of the Department by: a) handling inquiries in a formal manner by deciding who should handle the inquiry and doing subsequent follow-up; b) developing good working relationships between the Department and the public and fostering two-way communications; c) acting as an advocate for the community in the face of competing interests within the Department; d) providing technical assistance to community groups; e) serving as a vehicle for public education around particular issues; f) explaining the Department's abilities and limitations in particular situations; g) coordinating the work that must be done in conjunction with other agencies; h) helping interpret the Department's position in a decision on whether to do a study or carry out a particular action.

--- As part of this effort, there should be a toll-free number that citizens can call to obtain information about environmental health problems or to report suspected problems. Staff from the community service bureau should serve as the triage point to direct inquiries to the relevant agency or division, as well as to maintain a log of calls received and to record final disposition.

2. Finding: The Bureau of Environmental Health Services has had poor to non-existent communication with some local authorities, and has shown a lack of follow-through in responding to local requests for environmental health studies.

Recommendation

--- The Bureau needs to inform local boards of health of the basis for decisions on the need for environmental health studies. Such decisions should be founded on explicit policy and guidelines. If further study is warranted, it should proceed in a deliberate and timely fashion, with local authorities fully informed of plans and afforded an opportunity for comment and input. If there is a decision not to proceed with further study, the Bureau should send a response in a timely fashion, clearly stating the findings and why a study will not be done. There should be some mechanism by which local authorities can reopen a matter if warranted by new information.

C. Resources

1. Finding: The Department's four regional health officers have been an underused resource of the agency. Although these individuals interact with local boards of health more frequently than do central office staff, they have largely been left out of the communications loop and are often the last to know what is going on within the Department.

Recommendations

--- The activities of the regional health officers need to be integrated into the Department's strategies for achieving environmental health goals and program objectives. Regional health officers should be considered the senior managers they are and should be brought into the decision-making processes of the Department.

--- The Commission recommends that ties with the regional offices be strengthened. This recommendation includes using the regional offices as an integral link in prevention of environmental disease; clearly defining their role and providing financial support; providing a focal person in Boston for regional directors to contact on a regular basis; providing for regional office use of technical and educational resources in their region.

--- The Commission further recommends that regional health officers be given staff that reports to them, rather than to program directors in the central office.

Only in this way can the regional offices serve to reinforce the priorities of the central office.

2. Finding: Some outside experts have criticized the Bureau of Environmental Health Services for doing incomplete investigations and drawing conclusions that the data do not warrant. This criticism appears particularly true in characterizing the nature and the scope of environmental health risk.

Recommendations

--- The Department should use outside resources to improve its scientific and technical capabilities. The academic institutions, especially the state-supported universities, have facilities and expertise in biostatistics, epidemiology, toxicology, and in survey research. The Department should not try to duplicate these resources but should work with these and other groups, using traditional contractual methods.

--- In addition, the Commission recommends that a tripartite community board comprised of community activists, "trusted" experts, local health officials, together with staff from the Division of Environmental Health Assessment, be established. This community board would accomplish seemingly contradictory goals: a) have a group that the communities trust, instead of bureaucrats, oversee requests for studies; b) ensure that the Department's resources are not squandered in efforts of little value; c) ensure that resources are used in rational ways. The board would also help DPH assign priorities and monitor allocations of resources.

--- The State Laboratory Institute can be better used. The facility is capable of performing routine biological monitoring or surveillance of blood, urine, and other biological specimens submitted to it for other purposes. It can be used to detect increased body burdens of pollutants in residents, for example, from blood sera submitted for routine premarital blood tests.

3. Finding: The Bureau of Environmental Health Services has underused existing expertise in the public and private sectors. The lack of an open process in

policy formulation has given the impression that decisions are made in the "back room," which further contributes to the lack of public support for the Department.

Recommendations

--- Whenever an environmental health problem is identified, the Department should make use of public advisory groups to help carry out its responsibilities. These groups should have representation from the principal interests in the state, communities, local boards, and the private sector. DPH should take the advice of these boards into consideration when making policy decisions. It is better to have the battles in the "front room" rather than to give the impression that decisions are being made in the "back room."

--- When formal boards have already been established, as in the case of the Asbestos Taskforce and the Governor's Advisory Committee on Lead Paint Poisoning Prevention, the Department should actively pursue appointments to these bodies so that the work of these groups can make an active contribution to the problem-solving in these areas.

--- The Commission recommends that a broad-based advisory committee on environmental health policy and planning be appointed by the Commissioner to: a) help set environmental health priorities for the Department; b) review and make recommendations on environmental health policy matters relating to responses to public inquiries; c) review and make an annual assessment on performance in these responses; d) help communicate to the public and Legislature environmental health concerns; and e) help the public to communicate with DPH.

4. Finding: The Bureau of Environmental Health Services is not fully using existing data to assess environmental exposure and toxics and/or health effects therefrom.

Recommendations

--- Although the Bureau has used mortality data and is beginning to use newly-available cancer incidence data, there are many other sources of information that could be used to better assess environmental health in the Commonwealth.

A systematic surveillance of mortality, morbidity, cancer registry data and hospital discharge information should be conducted, with a linkage of these data to water data, air data, industry types, and similar information.

--- The Department needs to determine under what circumstances existing individual records and other health data by state and local boards of health can be made available for epidemiologic studies. Development of specific records will facilitate the discovery of currently known health effects of environmental toxicants.

5. Finding: Funding earmarked by the Legislature for a coordinated cancer control effort provides an opportunity to implement alternative organizational structures in environmental health.

Recommendations

--- The Commission suggests that a portion of the cancer control funds be used to do long-range planning in cancer prevention. The environmental health areas should address only exposures that are involuntary in nature, and not questions of behavioral attitudes.

--- It is important that the desire to accomplish several types of organizational improvements not compromise any potential effectiveness by seeking to create a combined purpose apparatus that dramatically reduces the possibility of clearly addressing departmental needs.

D. Education

1. Finding: The broad scope of environmental and occupational health problems is not fully understood either among health care professionals in the state or within the Department.

Recommendations

--- Massachusetts has a wealth of professionals who are highly trained in the health field. These individuals should be brought up to date by the Department on dangerous environmental exposures and resulting health effects through

presentations at professional meetings, meetings with professional leaders, and dissemination of information through existing professional publications.

--- In-service training and cross-training programs between agencies should be developed.

--- In-service training is needed both for the Department staff and for boards of health and their staff in the area of environmental health. The University of Massachusetts, a state institution, should be asked to develop in-service training programs under contract to the Department.

--- The Commission believes that an educational program for physicians is necessary. As professionals involved in health care, physicians must be made aware of symptoms of environmental abuse so that proper diagnosis occurs. For example, a physician in Town X who treats an unusually high number of miscarriages in a given geographical area should be aware that this finding may be more than just coincidence and that such instances should be brought to the attention of the Department.

--- The Commission feels that a state version of the Federal publication Morbidity and Mortality Weekly Reports would be a valuable mechanism for alerting professionals to environmental health trends. Such a publication, to be produced by the community service bureau recommended above, would contain information on environmental "outbreaks," provide updates on environmental health assessment studies, provide information on regulations, and note personnel changes.

APPENDICES

APPENDIX I

MEMBERS, STUDY COMMISSION ON ENVIRONMENTAL HEALTH NEEDS

David Ozonoff, M.D., M.P.H. Commission Chair. Associate Professor of Public Health, Boston University School of Public Health. Member of the Department of Environmental Quality Engineering (DEQE) Hazardous Waste Advisory Committee. President of the Massachusetts Public Health Association.

Steven Calichman, R.S., C.H.O. Commission Vice-Chair. Director of Public Health, Acton. Vice-President of the Massachusetts Environmental Health Association. Board Member of the Massachusetts Health Officers Association.

Ruth Batson, Ed.M. Boston health activist. Associate Professor, Division of Psychiatry (Community Psychiatry), Boston University School of Medicine.

Carole S. Greenleaf. Chief administrative aide to State Senator Carol Amick. Member of DEQE Hazardous Waste Advisory Committee and of Pesticide TaskForce.

Elizabeth G. Johnson, M.A.T., M.B.A. Environmental programs director for the American Lung Association of Massachusetts and of Boston.

Ronald R. Jones. Assistant Deputy Commissioner, Boston Department of Health and Hospitals and Director of its Office of Environmental Affairs. Hazardous waste coordinator, City of Boston.

Judith Pickett, J.D., Attorney in the Boston law firm of Bramberg and Hamada. Previously, attorney with the Conservation Law Foundation.

James Robins, M.D. Associate Professor of Occupational Health, Harvard University School of Public Health. Board member of the University of Connecticut's New Direction OSHA Program for worker education for safety and health.

James K. Rogers, Ch.E., M.B.A. Manager of Environmental Affairs, Digital Equipment Corporation. Member of the Massachusetts Hazardous Waste Facility Site Safety Council. Member of environmental committees of the Associated Industries of Massachusetts and of the Boston Chamber of Commerce.

Robert W. Tuthill, Ph.D. Professor of Epidemiology, Division of Public Health, University of Massachusetts, Amherst.

The Rev. Bruce A. Young, B.A., St.B. Co-founder of For a Cleaner Environment, a community group dedicated to environmental and public health issues in Woburn. Rector of Trinity Church in Woburn.

Richard A. Youngstrom. Certified Industrial Hygienist and Certified Safety Professional, International Union of Electrical Workers, Local 201, Lynn. Consultant to unions and community groups on environmental and workplace health and safety issues.

APPENDIX II

INDIVIDUALS INTERVIEWED BY THE COMMISSION AND ITS SUBCOMMITTEES

Halina Brown, Ph.D., Director, Office of Criteria and Standards, Department of Environmental Quality Engineering

John Cutler, Ph.D., M.D., Division Director, Environmental Health Assessment, Department of Public Health (DPH)

Dorothy Hall, Regional Health Officer, DPH

Robert Hallisey, Division Director, Radiation Control, DPH

Stephen Havas, M.D., M.P.H., Deputy Commissioner, DPH

Ron Josephs, Budget Director, DPH

Chester Kennedy, Acting Regional Health Officer, DPH

Hillel Liebert, Regional Health Officer, DPH

Bernadine McQueeney, Regional Health Officer, DPH

Bruce Millies, Esq., Legal Office, DPH

Ned Morse, Esq., Assistant Commissioner, Community Health Services, DPH

Gerald S. Parker, P.E., Assistant Commissioner, Environmental Health Services, DPH

Erica Powers, Esq., Counsel, Massachusetts Pesticide Board

Terrell Samuels, Division Director, Childhood Lead Poisoning Prevention Program, DPH

Emily Shamieh, Assistant Commissioner, Management Services, DPH

Richard Smith, Executive Director, Low-Level Radioactive Waste Commission

Bailus Walker, Jr., Ph.D., M.P.H., Commissioner, DPH

Lewis Wells, Director of Regulations, Department of Food and Agriculture

Leonard Pagnotto, Department of Labor and Industry, Division of Occupational Hygiene

APPENDIX III

PARTICIPANTS AT THE COMMISSION'S PUBLIC HEARINGS

The Commission held four public hearings. Two hearings were held on November 10, 1983, in Boston, and two others were held on November 14 in Holyoke. The following comments were received at the hearings:

Elliott Stone, Massachusetts Health Data Consortium, noted the need for the state to get appropriate health data in order to make proper decisions. Stated that there was a need to consider regional variations and to consider such questions as spontaneous abortions as indicators of environmental abuses.

Dr. Francis Moore, Massachusetts Health Data Consortium, followed up Mr. Stone's remarks by offering the services of their organization. Indicated that they could either do a contractual arrangement with the Department or else set up a working relationship with DPH and perhaps get private funding for their efforts.

Regina McCarthy, Canton Board of Health, stated that Canton had had a cancer scare. Unlike DEQE which did not provide assistance, DPH's Division of Health Statistics helped the community by examining mortality data and existing cancer rates. Citizens in the community pushed for the Department to conduct a morbidity study, even though it was very expensive. Felt that environmental monitoring is important in dispelling concerns. Noted the need for the Department to point out the limitations of epidemiological studies. Such studies cannot rule out the possibility that some causal relationship exists. Stressed the need for education of the public and the need for the DPH to work with local health officials and local residents. Also suggested that the Department attempt to educate doctors regarding environmental health issues.

Audrey Clary, UFFI Homeowners Association, indicated that her group of 75 members within a 10-mile radius of Action was concerned about potential home buyers lowering bid offers due to health concerns about UFFI. Indicated a need for the Department to keep the public informed, and to educate the public on the fact that not all UFFI installations are faulty. Stated that her conversations with DPH staff produced less than satisfactory results. Suggested that the Department also address the issue of indoor air pollution.

Dan Bernstein, Center for Atomic Radiation Studies, discussed the radiation exposure from testing of atomic weapons. Noted that there are 20,000 veterans in Massachusetts who may have been affected. Suggested that the DPH devote more attention to public education and research in this area. Also stated that the Cancer Registry was not compiling adequate information to perform epidemiological studies.

Anthony Lewsy, Lowell College, suggested that the Department might fund studies that focused on elimination of environmental hazards rather than epidemiological studies that often leave citizens unsatisfied. Also suggested that Small Business Administration-type incentives might be one means of encouraging businesses to eliminate environmental hazards.

Marsha Rockefeller, Mass. Audubon Society, stated that it was long overdue for the Department to get involved in environmental health issues and applauded the Department for going in that direction.

Laurie Kellogg, Mass. Coalition for Occupational Safety and Health, stated that the Right-to-Know bill had the potential for significant disease prevention. In the development of the regulations, it was important that all sides be consulted. Urged that the Department should carefully draft the research lab exemption clause, otherwise it could wind up as a loophole for industry.

Anna Desmond-Sweetser, For a Cleaner Environment (FACE), offered the following suggestions: DPH should be involved in potable water testing; Department should help the community prioritize its concerns by developing educational programs; DPH should continue to conduct health studies, even if some studies are only "negative" studies; Department should establish a community hazardous waste hotline; and the Department should be the overseer of local boards of health.

Sandra Marlow, Center for Atomic Radiation Study, reiterated Dan Bernstein's earlier concerns about low-level radiation from nuclear tests. Indicated that it is often difficult to identify affected individuals because of misdiagnosed diseases attributed to other causes. Suggested that the Cancer Registry specifically gather information on exposure to radiation by asking all victims whether they had ever been in the military.

Salvatore DiNardi, University of Massachusetts, Amherst, stated that the lack of adequate laboratory facilities in DPH hampered the Department's ability to conduct studies. Suggested WATS line for local boards of health to use in contacting the Department.

Hillel Liebert, DPH District Health Officer, noted that with the lack of professional staff on the local level, communities might want to consider pooling resources to hire staff jointly. Stated that the district health officer might be the appropriate individual to assist such an effort.

John Canning, Springfield Health Department, stated that duplication existed between DPH, DEQE, and local boards of health. Suggested that a clear delineation of responsibilities be established.

Bettye Anderson Frederic, Amherst Health Department, made the following recommendations:

1. a priority for the Department should be environmentally-related diseases and debilitating conditions. The emphasis should be on prevention of these diseases;
2. the Department should be available as direct sources of scientific information;
3. communities should be apprised of the risk factors for environmentally-related conditions;
4. lines of communication should be streamlined;
5. a hot-line should be established, giving ready access to Department staff to answer urgent community questions;
6. Department should develop positions on public health policy issues, and share them with local units, similar to what was done on nuclear weapons;
7. Department should develop a structure for effectively relating to local health units on all issues, including environmental health.

Ernest Depathy, Civil Defense, Chicopee, asked that the state notify each city when hazardous materials are being transported through that community. Asked whether the Right-to-Know law would have such a requirement.

APPENDIX IV

RADIATION CONTROL

Notes on scope of radiation issue

Radiation is a subject which involves numerous definitions (ionizing, non-ionizing radiation), public health issues (cancer, hereditary effects, effects on unborn children, atomic testing victims), occupational health issues (medical, industrial and nuclear workers), laws (state and federal) and various regulatory agencies (state and federal). The following briefly describes the complexity of the subject:

I. Definitions:

Ionizing radiation includes the higher energy (shorter wavelength) portion of the electromagnetic spectrum. It includes mechanical sources of energy like x-ray machines and electron beam welders as well as radioactive material like uranium, radium and radioisotopes. A confusing factor is the regulatory distinction made between "source, byproduct and special nuclear material" and other radiation sources such as x-rays and man-made isotopes (The Atomic Energy Act of 1954).

Non-ionizing radiation includes ultraviolet, infrared and visible light, lasers, microwaves and radiofrequency radiation. There is information on the health effects of some of these radiation sources (sunburn from UV light), and some standards have been developed but there is a great deal of controversy over the long term health effects from sources such as radio and TV broadcasting, high voltage electrical lines, microwave ovens and radar facilities.

II. Laws:

Atomic Energy Act of 1954 - regulates the processing and utilization of source material (natural uranium and thorium), special nuclear material (plutonium, enriched uranium) and byproduct material (radioisotopes produced in a reactor). Naturally occurring radioactive materials like radium, accelerator produced radioisotopes and machine produced radiation are not covered. This law when it was amended in 1974 established the Nuclear Regulatory Commission (NRC).

Radiation Control for Health & Safety Act of 1968 - protects public health and safety from the dangers of electronic product radiation. It is administered through the Bureau of Radiological Health in the Food and Drug Administration.

Pure Food, Drug and Cosmetic Act of 1938 and Amendments (1962, 1976) - this act controls the manufacture of drugs (including radioactive drugs).

Occupational Safety and Health Act (1970) - this act regulates working conditions and covers radiation sources not regulated by the NRC. Its regulations are published as 29CFR1910.96 and are taken from the NRC regulations 10CFR20.

State regulations - in 1962, the DPH issued "Rules and Regulations to Control the Radiation Hazards of Radioactive Materials and of Machines which Emit Ionizing Radiation" (Section 5B, Chapt. III). This document references Chapter 112 of the General Laws and Section 71 of Chapter 111 pertaining to registration of dental and hospital installations. Regulations have also been promulgated to regulate lasers (Section 51 of Chapter 111, 1970). The DPH and DLI (Div. of Occupational Hygiene) administer these laws.

III. Regulatory Agencies:

There exists a complicated and overlapping regulatory scheme involving the Nuclear Regulatory Agency, Occupational Safety and Health Administration, the Environmental Protection Agency, Massachusetts Department of Public Health, Massachusetts Department of Labor and Industry, and Massachusetts Department of Environmental Quality Engineering.

On a federal level the NRC regulates nuclear reactor material (as described) but can also enter into agreements with states to assume responsibility for licensing and regulating use of radioisotopes and certain other materials. Massachusetts is not an Agreement state. The EPA provides guidance in the formulation of radiation standards to other agencies, monitors some general environmental radiation levels and assumed authority from the Atomic Energy Commission and Public Health Service in the area of exposures in the general environment. OSHA covers all radiation sources not regulated by the NRC, including "x-ray equipment, accelerators, accelerator produced materials, electron microscopes, betatrons and some naturally occurring radioactive materials" (OSHA Program Directive #73-5). This authority is relinquished in NRC agreement states, although in practice little enforcement occurs in non-agreement states.

On the state level, the laws do not appear to make any source distinctions. The state is preempted by the Atomic Energy Act in regulation of nuclear reactor materials.

The DPH Radiation Control Division has the major state regulatory responsibility. It shares this with DLI in the workplace setting. DLI has a professional who visits reactor plants, industrial x-ray facilities and radionuclide production facilities. DLI is also involved with regulation of lasers. There is no document spelling out the particular areas of jurisdiction for DPH and DLI. For example, hospital x-ray machines are regulated by DPH but there is DLI involvement for hospital workers exposed to these machines.

APPENDIX V

BUDGET PROCESS

The budget process is a lengthy, complicated procedure which includes the following steps:

1. A&F Distributes Forms

The Budget Bureau of the Executive Office for Administration and Finance (A&F) distributes forms, guidelines, and budget manuals to all agencies.

2. DPH Submits Request

Department of Public Health submits its budget request to the Secretary of Human Services, with copies to the Budget Bureau and House and Senate Ways and Means Committees.

3. Secretariat Reviews Request

The Secretariat reviews requests, holds public hearings, and makes recommendations to A&F.

4. A&F Reviews Request

A&F reviews requests and recommendations, comparing them with revenue estimates. Negotiations take place in case of agency appeals. A&F then submits recommendations to the Governor. A&F may differ from both agency and Secretariat recommendations.

5. Governor Submits House 1 to the Legislature

The Governor traditionally submits his/her own budget as the first bill in the legislative session. The Governor presents the budget, known as House 1, on the first Wednesday in March if a "new" governor, or on the first Wednesday in January if an "old" governor. At this time, the Governor outlines Administration programs and strategies as well as revenue measures necessary to balance the budget.

6. House Ways and Means Committee Holds Public Hearings/House Debates

The House Committee on Ways and Means holds hearings on House 1, draws up an appropriations bill and submits it to the House. After seven days on the House calendar, the House debates the bill and adds amendments. The House may increase, decrease, add or subtract line items. House 1 is passed, engrossed, and sent to the Senate, usually no later than the last week in May.

7. Senate Ways and Means Committee Holds Public Hearings/Senate Debates

The Senate Committee on Ways and Means holds hearings on House 1, makes recommendations, refers it to the Senate. After seven days on the Senate calendar, the budget is debated, amendments are added, and the budget is passed, engrossed, and sent back to the House for concurrence.

8. Conference Committee Resolves Disagreements

Differences between the House and Senate versions of the budget are negotiated in a Conference Committee composed of the Chair and Vice-Chair of House and Senate Ways and Means and a Minority member from each Committee. The final version of House 1 is then submitted to both the House and Senate for enactment.

9. The Governor Has 10 Days to Sign As Is, or Sign with Line-Item Veto

The Governor can reduce or disapprove, but not increase, any item in a veto. A two-third vote is required in both chambers to override the Governor's veto.

Adapted from Credibility and the Public Trust: A Massachusetts Policymaker's Guide to State Systems, 1983, Massachusetts Department of Personnel Administration.

Activities must be highly visible and include letters to the editor of the local newspaper(s). (One committee with a highly effective letters-to-the-editor plan had a committee member review all letters to make sure they were positive in attitude, accurate and not submitted during the same week on the same specific topic. This reviewer was an elementary school teacher, not a health care professional.)

Literature informing voters about fluoridation needs to be distributed as broadly as possible. This may be done via direct mail; door-to-door leafletting or leafletting at the dump, post office, grocery store or other location which has a high level of traffic.

Locally produced letters and flyers with catchy slogans, simply written information and good graphics are important. Ads in local newspapers are also an important consideration.

People who usually vote in local elections are most likely to vote in any future election. These are the people it is most important to reach with information about fluoridation. Who has voted in previous elections is public record and may be obtained from the city or town clerk's office.

VI. STATEMENTS SUPPORTING FLUORIDATION

American Academy of Allergy

American Dental Association

American Medical Association

Massachusetts Congress of Parents and Teachers

Massachusetts Dental Society

Massachusetts Department of Public Health

U.S. Department of Health and Human Services,
Public Health Service

World Health Organization

VII. STATEMENTS SUPPORTING FLUORIDATIONAmerican Academy of Allergy

The American Academy of Allergy has evaluated the relationship of allergy to fluoride as used in the fluoridation of community water supplies. The evaluation included a review of clinical reports. As a result of this evaluation, the Executive Committee of the American Academy of Allergy unanimously adopted the following statement:

"There is no evidence of allergy or intolerance of fluorides as used in the fluoridation of community water supplies."

American Dental Association

On August 1, 1959, the House of Delegates of the American Dental Association issued the following statement:

"The American Dental Association unreservedly endorses the fluoridation of community water supplies within the standards established by the U.S. Public Health Service and the state or local public health authorities. This endorsement of the community fluoridation procedure has been an official policy of the Association since the year 1950. In 1953, the Association's House of Delegates reaffirmed its outright support for the fluoridation procedure. The 1951 resolution adopted unanimously by the House of Delegates said:

Resolved, that the American Dental Association reiterate its recommendation that all local communities be urged to adjust the fluoride content of their public water supplies to the level recommended by responsible state and local health authorities.

In 1962 the following statement was adopted by the House of Delegates of the American Dental Association (Transactions 1962:288):

"The fluoridation of public water supplies is a safe, economical and effective measure to prevent dental caries. It has received the unqualified approval of every major health organization in the United States and of many in other countries. Two thousand communities in this country are presently enjoying its benefits. In terms of its potential usefulness in improving the dental health of the nation, however, public acceptance of fluoridation is lagging. Eighteen thousand communities have yet to institute the procedure, and forty million children are being denied its benefits.

"Greater progress toward the goal of universal acceptance has been hampered by the efforts of small, strangely motivated groups whose real or announced objectives are usually obscure. These groups employ every device of propaganda, including distortion, untruth and personal attack, to weaken the confidence of the public in this health-giving measure. They do not hesitate to use techniques which engender uncertainty and fear and, thus delay the acceptance of community water fluoridation.

"Traditionally, the individual dentist and the dental society have made their scientific knowledge and resources available to the community. They

have sought the acceptance of fluoridation by providing leadership in keeping with their professional competence. The tactics of those who oppose fluoridation, however, are of such nature as to warrant, and command professional leadership beyond the usual point. The antisocial program of the antifluoridationists must be countered, and the individual dentist and the dental society now have not only the obligation to support but also to initiate, when necessary, programs for the acceptance of the fluoridation of the community water supply. This leadership should be amplified whenever possible by the enlistment of aid from other professions and individuals and agencies interested in public health."

American Medical Association

"The position of the American Medical Association on the matter of fluoridation of public water supplies is frequently sought by the public and by people in the health professions. The following material is intended to supply, briefly and concisely, this information.

"On December 1, 1974, the House of Delegates of the American Medical Association adopted the following policy statement with respect to fluoridation of community water supplies.

"Few health measures have been accorded greater clinical and laboratory research, epidemiological study, massive clinical trial of total community populations, and public attention, both favorable and adverse, than the fluoridation of public water supplies.

"In 1957, the American Medical Association (AMA) issued a position statement relative to fluorides and public water supplies (based on what was then known through trial and study). It is timely to update this statement as there now exists extensive additional experimental clinical, laboratory, and epidemiological data confirming the safety and efficacy of this important essential nutrient.

"In evaluating these data, the AMA has directed major interest at several aspects of fluoridation: its clinical effectiveness in public water supplies, factors of safety, range of effectiveness, as well as determination of levels of fluorides from water supplies have been reviewed. A complete understanding of the range of safety and effectiveness as it relates to the population as a whole, all ages and states of health, has been recognized to be of primary importance.

"The recommended optimum concentration of fluoride in the water supply (0.7 to 1.2 ppm according to locality) should be consumed throughout life. This conclusion is based on epidemiological studies conducted in areas where fluoride occurs naturally in the water, and in areas where it has been added at the recommended level by mechanical means. Numerous controlled fluoridation programs, some in operation since 1945, have been evaluated as successful in reducing or preventing dental caries.

"Only when relatively large amounts of fluoride (8 to 20 mg/day) are ingested over periods of 10 to 20 years are generalized adverse effects encountered. No adverse effects have been reported when water containing

optimum levels of fluoride has been drunk during periods of 10 to 20 years. Fluoride induced mottling of tooth enamel has been reported only when fluoride concentration in the water exceeded 1.4 to 1.6 ppm.

"Research has established that people consuming water containing the optimum level of fluoride experience no adverse effects on their kidneys, thyroid glands, reproductive functions, growth, development, blood, urine or hearing. No cases of allergic reactions have been linked with consumption of water fluoridated at the recommended levels.

"Research has also provided evidence that suitable amounts of fluoride may be helpful in preventing or alleviating bone diseases such as osteoporosis, especially among older people.

"Equipment has been developed, reliable analytical procedures are available, and appropriate safeguards have been established to assure that fluorides can be added safely to public water supplies at the optimum level.

"It is in keeping with this perspective that the AMA has reviewed the problem critically and in its entirety, taking cognizance of what has been done, as well as carefully weighing the comments of those opposed to fluoridation, together with their scientific evidence, in order to maintain an objective attitude concerning this important health measure.

"No alternative techniques for the prophylactic application of fluorides can at present replace the fluoridation of drinking water as an effective and practical public health measure. Where water fluoridation at optimum levels cannot be used, however, other ways of supplying the proper amount of fluoride should be encouraged.

"On the basis of this careful analysis of information, the AMA considers the fluoridation of public water supplies at the recommended rate to be a desirable and safe health measure for total populations and urges all communities to adopt the necessary measures."

Massachusetts Congress of Parents and Teachers

"The Massachusetts Congress of Parents and Teachers endorses, vigorously supports and recommends the adjustment of the fluoride content of water supplies as a progressive health measure.

"The Massachusetts Congress of Parents and Teachers recommends that the public be informed by extra-school educational programs of the value and safety of fluoridation as a caries prevention measure.

"The Massachusetts Congress of Parents and Teachers encourages, through local PTA councils, the public acceptance of fluoridation of public water supplies to reduce the pain, expense and disfiguration from an excess of decayed, filled and missing teeth of the many thousands of children and young adults in Massachusetts."

Massachusetts Dental Society

"The Massachusetts Dental Society champions the cause of preventive dentistry. More good can be accomplished for dental health more readily and at only a fraction of the cost, through public health measures than by any other means. To this end, the Society has enthusiastically and effectively supported efforts to fluoridate public water supplies. The benefits in improved dental health that would accrue to our children in only a decade of fluoridation would be tremendous. Not only would patients be relieved of much pain and discomfort but there would also be a resultant savings of millions of dollars in the Medicaid program. The Society will continue to support fluoridation and other health efforts."

Massachusetts Department of Public Health

The Massachusetts Department of Public Health considers the excessive prevalence of tooth decay among the residents of the Commonwealth to be a serious and costly public health problem. The Department has actively supported fluoridation of community water supplies in Massachusetts since 1951 as the safest, most effective and most economical method for reducing tooth decay.

Extensive research conducted nationally since 1945 consistently documents the safety and efficacy of water fluoridation. Results show fluoridation prevents tooth decay by up to 70 percent. In addition, fluoridation has been demonstrated to reduce the cost of accumulated dental care for children by 60 percent and the cost of routine, follow-up care by 50 percent.

The Massachusetts Department of Public Health continues its strong support of water fluoridation in local communities.

Massachusetts Medical Society

On May 17, 1954, the Council of the Massachusetts Medical Society issued the following statement on recommendation of the Committee of Public Health:

"Because of the fact that there is an active campaign on the part of ill-informed or misguided persons to make illegal the fluoridation of drinking water, the committee recommends that following principles be approved by the Council:

"Fluoridation is efficacious in the prevention of dental caries. In the dilution used in drinking water supplies the procedure is safe and harmless. According to the best present information the procedure of administering fluorides via the water supply is the safest, simplest and most economical method of supply. No community should be deprived of the option of using this method."

The Council reaffirmed its stand in favor of fluoridation six months later and has repeatedly reaffirmed this stand:

U.S. Department of Health and Human Services, Public Health Service

"The United States Public Health Service unequivocally endorses the fluoridation of community water supplies. Fluoridation can be classed with the pasteurization of milk, the purification of water, and immunization against disease as one of the four great disease prevention measures of all time.

"Good dental health is essential to total health. Techniques of modern dentistry however advanced, cannot in themselves ensure good dental health. Fluoridation of public water supplies assures a reduction in dental decay of 60 - 70 percent and, in combination with preventive dental practices, offers the opportunity for children to keep their teeth for life.

"The Public Health Service urges every community to make the benefits of fluoridation available to its citizens as soon as possible."

World Health Organization

"The effectiveness, safety and practicability of fluoridation as a means of preventing dental caries, one of the most prevalent and widespread diseases in the world, is now established." This is the opinion of the Expert Committee on Water Fluoridation of the World Health Organization.

VII. HEALTH AGENCIES AND OTHER ORGANIZATIONS
FAVORING FLUORIDATION

MAJOR PUBLIC SERVICE ORGANIZATIONS AND HEALTH AGENCIES
THROUGHOUT MASSACHUSETTS, THE UNITED STATES, AND THE WORLD
SUPPORT FLUORIDATION. THE LIST INCLUDES:

MASSACHUSETTS

Dental Service of Massachusetts
Massachusetts Association of Older Americans, Inc.
Massachusetts Dental Assistants Association
Massachusetts Dental Hygienists' Association
Massachusetts Dental Society
Massachusetts Health Council, Inc.
Massachusetts Hospital Association
Massachusetts Medical Society
Massachusetts Nurses Association
Massachusetts Parent-Teacher-Student Association
Massachusetts Public Health Association
New England Water Works Association

HEALTH RELATED/UNITED STATES

American Academy of Allergy
American Academy of Pediatrics
American Academy of Pedodontics
American Association for the Advancement of Science
American Association for Dental Research
American Association of Dental Schools
American Association of Public Health Dentists
American Cancer Society
American College of Dentists
American Dental Assistants Association
American Dental Association
American Dental Health Society
American Dental Hygienists Association
American Diabetes Association
American Heart Association
American Hospital Association
American Medical Association
American Nurses Association
American Osteopathic Association
American Pharmaceutical Association
American Psychiatric Association
American Public Health Association
American School Health Association
American Society of Clinical Pathologists
American Society of Dentistry for Children
American Veterinary Medical Association
Association of Public Health Veterinarians
Association of State and Territorial Dental Directors
Association of State and Territorial Health Officials
Federation of American Societies of Experimental Biology
Mayo Clinic

National Academy of Sciences
National Commission on Community Health Services
National Kidney Foundation
National Nutrition Consortium
American Dietetic Association
American Institute of Nutrition
American Society for Clinical Nutrition
Institute of Food Technologists
Society for Nutrition Education
Food and Nutrition Board, National Academy
of Sciences, National Research Council
National Research Council
Society of Toxicology
U.S. Department of Agriculture
U.S. Environmental Protection Agency
U.S. National Institute on Aging
U.S. Public Health Service (CDC, FDA, NIH, HRSA)

NON-HEALTH RELATED/UNITED STATES

American Federation of Labor and Congress of Industrial
Organizations (AFL-CIO)
American Institute of Canning
American Institute of Packing
American Public Welfare Association
American Society of Brewing Chemists
American Water Works Association
Association of Casualty and Surety Companies
Child Study Association of America
Conference of State Sanitary Engineers
Consumer Federation of America
Health Insurance Association of America
National Education Association
National Institute for Municipal Law Officers
Office of Civil Defense
Travelers Insurance Company
U.S. Chamber of Commerce
U.S. College Foundation and Pan American Sanitary Bureau
U.S. Department of Defense
U.S. Jaycees

INTERNATIONAL (Partial Listing)

European Organization of Caries Research (ORCA)
European Organization for the Promotion of Fluoridation
Federation Dentaire Internationale
International Association of Dental Research
Pan-American Health Organization
World Health Organization (WHO)

Canada

Canadian Association of Accident and Sickness Insurance
Canadian Dental Association

Canadian Dental Hygienists Association
Canadian Medical Association
Canadian Nurses Association
Canadian Pediatric Society
Canadian Pharmaceutical Association
Canadian Public Health Association
Canadian Society of Dentistry for Children
Department of National Health and Welfare
The Health League of Canada

Great Britain

British Dental Association
British Medical Association
Great Britain Ministry of Health
Royal College of Physicians
Royal Health Service
Royal Society of Health

